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OREGON

A Complete and Comprehensive Description
OF THE
**AGRICULTURAL,
STOCK RAISING AND
MINERAL RESOURCES**
OF OREGON.

Also Statistics in regard to its Climate, etc.,

Compiled from the Latest Reports of 1892.

Presented with the Compliments of the

PASSENGER DEPARTMENT,

SIXTH EDITION

OREGON

UNION
PACIFIC
RAILWAY
COMPANY

ITS

WEALTH AND RESOURCES.

WITH THE COMPLIMENTS OF THE

PASSENGER DEPARTMENT.

SIXTH EDITION, REVISED.

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IN REGARD TO ITS CLIMATE, ETC.,
COMPILED FROM THE LATEST
REPORTS OF 1892.

OMAHA, MARCH 1, 1893.

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UNION PACIFIC SYSTEM, OMAHA, NEB.

SIXTH EDITION, REVISED.

AN OUTLINE.

Oregon possesses a sufficient diversity of climate, soil and scenery to suit every taste but that which inclines to the wholly tropical. It has ample resources to meet all the reasonable wants of all mankind, of high or low degree. It affords the widest scope for the energy and skill of the manufacturer and the merchant, the stockman, the grain-grower, the navigator and the miner. It is a most inviting field for the lumberman, the fisherman, the fruit-grower, the market-gardener and the dairyman. It stands unrivaled for that large and constantly increasing class who are searching for health and pleasure in an ideal mountain land or by the sea.

Р. А. С. ОБЩЕ
МУЗЕЙ ЛАКОТ
ГОД 1911

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OREGON.

LOCATION, AREA, AND PHYSICAL FEATURES.

Previous to the admission of Washington as a State, Oregon was the most northwesterly State of the Union. On the north side it is bounded by Washington, on the east by Idaho Territory, on the south by Nevada and California, and on the west by the Pacific Ocean. With the Columbia forming the northern, and the Snake River most of the eastern, boundary, and the waters of the Pacific washing its entire west coast, Oregon is almost surrounded by navigable waters. The average width of the State, from east to west, is 350 miles, and from north to south 275 miles. Its area is 95,274 square miles, or nearly 64,000,000 acres. It is as large as all the New England States, with Indiana added, and larger than New York and Pennsylvania combined. To more fully impress the reader with the liberal proportions of Oregon, it may be added that it is half as large as France, nearly twice as large as Old England, five times as large as Switzerland, and seven times the size of Holland. Oregon has a population of over 300,000. Were it as closely settled as Switzerland, it would have 12,000,000 people; as France, about 17,000,000; as Holland, about 25,000,000; or as England, at least 40,000,000. In its proportion of productive to waste land, it will compare well with the average of the foreign countries named. In soil or climate or other conditions affecting the growth of vegetation or commerce interests, the comparison would be vastly in favor of Oregon. Situated between the parallels of 42° and 46° 18' north latitude, this State is not unlike, in climate and physical characteristics, Virginia or Tennessee.

The Cascade Mountains divide Oregon into two unequal parts, each of which is characterized by a marked difference in topography, soil, climate, and, to some extent, productions. Along its west coast the Coast Range also traverses it from north to south, while along its eastern boundary, the Blue Mountain Range, with its various spurs, covers probably a fifth of the total area of the State. Other lesser ranges, generally spurs of those named, jut into the intermediate regions, lend the entire country an extraordinary diversity of feature. Fruitful valleys of varying extent, each of which is traversed by a more or less important stream, are numerous. The valleys of its western third have an average elevation of only a few score feet above the sea-level. The eastern part, embracing fully two-thirds of the superficial area of the State, is much higher, from 1,500 to 5,000 feet above the ocean. Numerous mountains are higher, Mount Hood, the most notable peak, being upward of 11,000 feet. The general divisions of the

country, including scores of districts, are three. That part of Oregon lying west of the Cascade Mountains and north of the Rogue River Mountains (which range runs east and west, about 100 miles from the southern boundary) is known as Western Oregon. That part of the State lying east of the Cascade Mountains, excepting two counties on the southern border, is called Eastern Oregon. The country lying south of the Rogue River Mountains, with the two counties further east above referred to, is called Southern Oregon.

The western division is about one-fourth of the State, but it contains at least one-half of the arable land, including the matchless valley of the Willamette, which is 140 by 50 miles in extent. Scarcely less important than the Willamette Valley is the coast district of Western Oregon, which borders the ocean for about 150 miles. Between these arable districts lie broad ranges of forest, affording a supply of timber practically inexhaustible. No country in the world is more bountifully watered than Western Oregon. It is a land of rivers. Clear and pure water gushes from every hillside, and it is rare that a square mile is found through which a crystal stream does not flow.

What is called Southern Oregon includes about one-fifth of the superficial area of the State. A small portion of this, lying next to the ocean, has physical characteristics and climate similar to Western Oregon, while the remainder, compassed about with mountains, and being more elevated, has a climate of its own, drier than Western Oregon, yet not so dry as the climate of Eastern Oregon. In summer these districts lie under a warmer sun than their northerly neighbors. Being in the elevated country, east of the Cascade Mountains, they suffer, if not extremes, severities of cold never experienced west of that great ridge.

Eastern Oregon is a general designation given to all that part of the State east of the Cascade Mountains, excepting the much smaller southern portion last above described. This division embraces two-thirds of the area of the State. In its general characteristics this region may be described as high and dry, warm in summer, cool in winter, rich in soil, and fairly well supplied with timber. In a country so vast there are many local variations from this general statement. The average elevation of Eastern Oregon is about 2,500 feet. The southwestern portion of this section, notably all that lying south of Malheur River, is so dry as to require irrigation for the maturing of almost all crops. The northern central portion of this Eastern Oregon country is much broken by minor ranges of mountains, which afford fine pasturage; and here and there are narrow valleys, unsurpassed for fertility. The southern central section is known as the Harney Lake region, which has long been celebrated as the main grazing region of the State. This may be described as a vast, rolling table-land, interspersed with valleys of considerable extent, which are naturally meadows of luxuriant and nutritious grasses.

RIVERS, WATER-COURSES, AND SPRINGS.

Oregon probably has no equal in our Union for the number, size, and economical disposition of its water-courses. The Columbia ranks with the

greatest rivers of the world. From its birth, among the most magnificent scenes of earth, in the far north and in the heart of Yellowstone National Park, down through its 2,500 miles of irresistible sweep to the western sea, it is an avenue of wealth and wonder. Inland for 300 miles from the Pacific it averages about two miles in breadth, reaching over six miles near its mouth. Engineers estimate that it carries off a volume of water but little, if any, less than the Mississippi. Its immense drainage of 395,000 square miles can be imagined from the fact that during the melting of the snows in the northwestern mountain ranges, its daily increase, for days at a time, has been equal to the entire volume of the Hudson. It is the only river in our great republic which will receive deep sea-going vessels 120 miles into the interior, or a river steamer 1,000 miles inland, among the Cascade, Blue, Bitter Root, and Rocky Mountains. The Willamette River is next in size and may be navigated by the largest ocean steamships and sailing vessels as far as Portland, 112 miles from the sea, and by river steamers a distance of 138 miles beyond. It gathers up the waters of forty-two streams, some of which are navigable for light-draft steamers. The Snake River is next in importance, being in fact, the main fork of the Columbia. It has been navigated by light-draft steamers to a point within 125 miles of Salt Lake City, almost under the shadows of the Wahsatch Range.

Among other navigable streams are Rogue River and Umpqua River in Southwestern Oregon. Flowing from south to north in Central Oregon and emptying into the Columbia are the Des Chutes and John Day Rivers, each about 300 miles long. In Southeastern Oregon are the Owyhee and Malheur Rivers, the former rising 500 miles southward, in Nevada, and emptying into the Snake where the latter stream strikes the eastern Oregon boundary line. In Northeastern Oregon are the Powder, Grande Ronde, and Umatilla Rivers, all swift, strong streams, watering large areas of fertile valley lands.

The mountain tributaries of these rivers are almost innumerable. Rising among the eternal snows of the higher ranges, or bursting forth from thousands of crystal springs, they are among the greatest of Oregon's attractions, both on account of their value in the development of many material interests, and for their varied charms for the sportsman and tourist.

The Government has appropriated large sums of money for the improvement of the Columbia River at its passage through the Cascade Range. When the work contemplated is completed, this stream with its tributaries will be the artery of almost unbounded commercial relations with a vast domain north and east of Portland, the metropolis of the State. Work is also progressing on the improvements of the other navigable streams, all of which, when completed, will greatly accelerate the development of the regions they drain.

There is unlimited and unrivaled water-power at many points along these rivers and streams. There are falls almost innumerable, ranging from 25 to 500 feet in height, some of which are already being utilized, as will appear under the head of "Manufacturing," in succeeding pages.

There are several commodious harbors for vessels of light draft on the coast line, exclusive of those found at the mouths of the several rivers. At these places a thriving business is carried on in lumbering, coal-mining, fishing, oystering, dairying, and agricultural products.

As will be gathered from the foregoing, Oregon abounds in springs, large and small. These are found everywhere, from the seashore to the most elevated mountain peaks. Some are so large and deep as to almost arrive at the dignity of lakes, and the waters they throw forth at once make respectable creeks. This is especially the case in the Harney Lake region and in Western and Southern Oregon.

CLIMATOLOGY AND HEALTH.

Each of the three natural divisions of Oregon has a climate peculiar to itself. The climate of Western Oregon is mild and equable. The average spring temperature is 52°; summer, 67°; autumn, 53°; winter, 39°; or an average of 52.75° for the whole year. The thermometer seldom rises above 90° in the hottest days of the summer, and rarely falls below 20° in the winter; so that out-door labor may be performed at all times of the year, and at all hours of the day. Considering the thermometer's limited range during the four seasons, and the other conditions peculiar to the locality, a year would more properly be divided into two seasons—the wet and dry, the former lasting from the middle of November until May, during which period the rainfall is copious and regular, insuring certain crops and good pasture. In the Willamette Valley the annual rainfall is forty-four inches—about the same as at Davenport, Memphis, and Philadelphia, while in all other valleys it is sufficient to prevent any drouth. The rain never comes in torrents, but gently and without atmospheric disturbance. Thunder storms are rare. The remarkable equability of the Western Oregon climate can best be shown by the United States Signal Service Reports for a long series of years, and we append the same for seventeen years, beginning with 1872 and ending with 1889. We divide the year into two seasons—winter and summer, or wet and dry.

WINTER—WET SEASON

YEAR.	NOVEMBER.					DECEMBER.					JANUARY.					FEBRUARY.					MARCH.				
	Highest thermometer.	Lowest thermometer.	Mean temperature.	No. of days on which rain fell.	Total precipitation.	Highest thermometer.	Lowest thermometer.	Mean temperature.	No. of days on which rain fell.	Total precipitation.	Highest thermometer.	Lowest thermometer.	Mean temperature.	No. of days on which rain fell.	Total precipitation.	Highest thermometer.	Lowest thermometer.	Mean temperature.	No. of days on which rain fell.	Total precipitation.	Highest thermometer.	Lowest thermometer.	Mean temperature.	No. of days on which rain fell.	Total precipitation.
1872			41.628	4	4.87	.....	.....	42.513	5	9.30	.....	.....	36.818	6	6.56	.....	.....	44.014	11	11.83	.....	.....	48.2	8	5.98
1873			47.812	4	4.83	.....	.....	36.718	5	5.15	.....	.....	47.855	8	8.46	.....	.....	41.014	6	6.58	.....	.....	48.422	10	12.78
1874			47.812	10	10.22	.....	.....	36.718	13	13.41	.....	.....	47.855	9	9.49	.....	.....	43.820	8	8.28	.....	.....	48.422	10	5.15
1875			47.812	15	15.77	.....	.....	36.718	13	13.41	.....	.....	47.855	9	9.49	.....	.....	43.820	8	8.28	.....	.....	48.422	10	9.42
1876			47.812	10	10.03	.....	.....	36.718	9	9.49	.....	.....	47.855	9	9.49	.....	.....	43.820	8	8.28	.....	.....	48.422	10	9.41
1877			47.812	12	12.45	.....	.....	36.718	11	11.83	.....	.....	47.855	9	9.49	.....	.....	43.820	8	8.28	.....	.....	48.422	10	11.31
1878			47.812	12	12.45	.....	.....	36.718	11	11.83	.....	.....	47.855	9	9.49	.....	.....	43.820	8	8.28	.....	.....	48.422	10	6.23
1879			47.812	14	14.56	.....	.....	36.718	11	11.83	.....	.....	47.855	9	9.49	.....	.....	43.820	8	8.28	.....	.....	48.422	10	11.70
1880			47.812	10	10.03	.....	.....	36.718	9	9.49	.....	.....	47.855	9	9.49	.....	.....	43.820	8	8.28	.....	.....	48.422	10	4.48
1881			47.812	9	9.17	.....	.....	36.718	9	9.49	.....	.....	47.855	9	9.49	.....	.....	43.820	8	8.28	.....	.....	48.422	10	2.83
1882			47.812	7	7.71	.....	.....	36.718	9	9.49	.....	.....	47.855	9	9.49	.....	.....	43.820	8	8.28	.....	.....	48.422	10	2.83
1883			47.812	8	8.26	.....	.....	36.718	9	9.49	.....	.....	47.855	9	9.49	.....	.....	43.820	8	8.28	.....	.....	48.422	10	6.53
1884			47.812	8	8.26	.....	.....	36.718	9	9.49	.....	.....	47.855	9	9.49	.....	.....	43.820	8	8.28	.....	.....	48.422	10	6.40
1885			47.812	8	8.26	.....	.....	36.718	9	9.49	.....	.....	47.855	9	9.49	.....	.....	43.820	8	8.28	.....	.....	48.422	10	7.1
1886			47.812	8	8.26	.....	.....	36.718	9	9.49	.....	.....	47.855	9	9.49	.....	.....	43.820	8	8.28	.....	.....	48.422	10	5.39
1887			47.812	8	8.26	.....	.....	36.718	9	9.49	.....	.....	47.855	9	9.49	.....	.....	43.820	8	8.28	.....	.....	48.422	10	8.00
1888			47.812	8	8.26	.....	.....	36.718	9	9.49	.....	.....	47.855	9	9.49	.....	.....	43.820	8	8.28	.....	.....	48.422	10	2.87
1889			47.812	8	8.26	.....	.....	36.718	9	9.49	.....	.....	47.855	9	9.49	.....	.....	43.820	8	8.28	.....	.....	48.422	10	1.80

Following is the result "in a nutshell" of all the observations of the first seventeen years:—

YEAR.	Highest Ther- mometer.	Lowest Ther- mometer.	Mean Temper- ature.	No. of Days on which Rain fell.	No. of Days on which Snow fell.	Precipitation.
1872.....			51.7	139		46.59
1873.....			52.8	157		50.52
1874.....	88.0	27.0	53.6	164		59.17
1875.....	95.0	3.0	53.6	152		61.08
1876.....	99.0	20.0	53.1	169		55.04
1877.....	91.0	25.0	53.9	166		58.30
1878.....	97.0	18.0	53.0	146		47.70
1879.....	91.7	3.0	52.4	170		62.22
1880.....	92.0	19.0	50.3	160		51.87
1881.....	90.5	24.0	52.2	184		58.05
1882.....	95.4	18.0	51.5	154	17	67.24
1883.....	94.0	7.0	51.4	127	8	51.45
1884.....	94.2	7.2	54.0	142	24	38.31
1885.....	99.0	17.0	54.5	139	1	39.57
1886.....	95.0	15.0	52.6	134	6	38.76
1887.....	99.0	9.1	52.0	157	23	54.17
1888.....	97.0	2.0	53.6	150	5	38.76
1889.....	96.0	23.0	54.8	136	10	31.76

The number of rainy days given includes all days on which any rain at all fell within the twenty-four hours; and every day on which even a light shower fell, either at night or during the day, is counted as a rainy day, even though it might have been clear twenty-three hours out of the twenty-four. The record as to snow is incomplete prior to the year 1882; but, as much more than the average of snow has fallen in the last five years, the showing may be relied upon as an average. Prior to 1882, the days on which snow fell are counted as rainy days. The amount of precipitation is given in inches and hundredths. As with rainy days, so with days on which snow fell—the lightest fall of snow is counted as a day of snow. All temperatures given are above zero. The thermometer has never registered below zero since the office was established. A local writer in discussing the rainfall says:—

"Oregonians often meet people, strangers to our State only lately arrived, who ask anxiously, 'When will the rainy season begin?' They come prepared for the worst, and are astonished at clear weather in November. The fact is, the pleasantest month in the year in Oregon is usually October. There have been many years when the Upper Willamette was too low for steamboating until the holidays, and other years when midwinter has seen for a month at a time as clear and beautiful weather as heart could wish. Our seasons are changeable and follow no rule, sometimes giving us rainy seasons after a literal fashion, while at other times we enjoy winters when flowers—roses—bloom every month. Our rainy season this year ended May 10, with ten days of winter weather. Then for four months we had clear skies, and July gave a few really warm days. The summer was agreeable, with deliciously cool nights. About the middle of September come several showery days and nights that enabled farm-

ers to sow their summer fallow land and get a good start on their early fall wheat. Other rains came to help farmers out and make pastures grow, and the rains of November favored greatly all who wished to plow stubble land. Farmers have had a very fine fall season. The rains, when they are persistent, are generally warm, and we call it equal to a life-insurance policy to have a good Oregon rainy spell. It is certainly the pleasantest portion of the year. Our rains are not only conducive to health, but they insure our crops as well. Our rainy season is the guarantee of our unfailing harvests, and protects us from the many pests that devastate less-favored California."

That the general reader may be able to compare the figures which we have given as to the general average precipitation of the different divisions, and different sections of each, with one or more sections of the United States with which he is familiar from actual experience, and thus form a correct idea of what the figures for this country mean, even though he has not made much of a study of this class of observations, we give here the figures as to one or more points in each section of the country east of the Rocky Mountains. These figures are taken from the Government Signal Service records, and are based upon a period of 15 years.

Portland, Me.....	39.74	inches.	New Orleans, La.....	64.36	inches
Boston, Mass.....	48.23	"	Little Rock, Ark.....	60.35	"
Block Island, R. I.....	54.98	"	Galveston, Texas.....	52.30	"
New Haven, Conn.....	50.85	"	Chattanooga, Tenn.....	59.84	"
New York City.....	43.58	"	Memphis.....	56.10	"
Philadelphia, Pa.....	41.07	"	Indianapolis, Ind.....	47.01	"
Atlantic City, N. J.....	43.23	"	Cincinnati, Ohio.....	43.74	"
Baltimore, Md.....	42.26	"	Detroit, Mich.....	34.76	"
Washington, D. C.....	43.37	"	Chicago, Ill.....	37.34	"
Norfolk, Va.....	51.62	"	Springfield, Ill.....	47.52	"
Charlotte, N. C.....	54.10	"	Milwaukee, Wis.....	33.63	"
Wilmington, N. C.....	57.79	"	Des Moines, Iowa.....	42.45	"
Charleston, S. C.....	59.91	"	St. Louis, Mo.....	37.88	"
Savannah, Ga.....	52.69	"	Leavenworth, Kans.....	38.97	"
Jacksonville, Fla.....	55.31	"	Omaha, Neb.....	36.45	"
Atlanta, Ga.....	56.23	"	St. Paul, Minn.....	29.54	"
Mobile, Ala.....	65.97	"	Yankton, Dak.....	28.21	"
Vicksburg, Miss.....	61.38	"			

While there is some slight variation in different sections of "The New Empire," yet as a rule, the greater part of this precipitation for both the division east and the one west of the mountains, and all locations in each, is in the winter months, and, for by far the greater portion of the country, the proportion for the different seasons is as follows:—

Spring (March, April, May).....	4-16
Summer (June, July, August).....	1-16
Autumn (September, October, November).....	4-16
Winter (December, January, February).....	7-16

For the division east of the mountains (in which much of the winter precipitation is snow), in its best watered section along the Columbia and Snake rivers, the average precipitation for winter is, as near as may be, the same as the average of the States of the Atlantic sea-board; that for spring and autumn is about one-half, and that for summer about one-sixth, the average for those States. For the division west of the mountains, taking its central portion as the point of general average for the division, the average precipitation for winter is about two and one-fourth times that of the northern Atlantic States, and about one and one-half times that of the

southern States; that for spring and autumn is about the same as for the northern Atlantic States, and about two-thirds that of the southern States; and that for summer is about one-fifth that for either northern or southern States taken as a whole.

In the division west of the mountains very little snow falls. The record of snow is complete for the years 1882 to 1887 inclusive only. Counting each day on which any snow at all fell as a day of snow, the record for these years shows the following as to the number of snowy days: The year 1882 had 17, 1883, 8, 1884, 24, 1885, 11, 1886, 6, 1887, 19,—a total of 75 days for the six years, or an average of $12\frac{1}{2}$ days for each year. But much of this was light snow melting as it fell, and the great body of the precipitation was in the form of rain. During the winter months more rain falls in this division than in most other parts of the United States; and this has given to the winter the name of the rainy season. It must not be understood, however, that it is a season of constant rain; for such is not the case. Taking the record for 16 years at Portland, and counting every day as rainy on which any rain or snow whatever fell during the twenty-four hours, however light the shower or fall, the general average number of rainy days for each of the winter months is: December $18\frac{1}{4}$, January $20\frac{3}{8}$, February 17. Fully one half of these were days of but light showers or falls of snow, in good part at night; and a very large part of the time was as pleasant as the winter weather of any other section.

WESTERN OREGON.

Whenever the thermometer falls a few degrees below the freezing point in this section of Oregon, the weather is usually bright and pleasant, with heavy white frost at night. The frosts that occur in the spring, which in other lands would be severe enough to injure fruit and other crops, are commonly followed by a heavy fog from the ocean. The humidity of this fog dissolves the frost before the sun can strike the vegetation, so that no harm is done by it. This moist atmosphere keeps the grass perennially green on the coast, and it is not unusual for flowers to bloom in the open air the winter through. Ice is seldom sufficiently thick to be cut for use, and skating is a rare pastime. The spring opens so early that the farmer sows his seeds and the fruit-trees and wild flowers are in bloom when the rigor of winter is still unrelaxed in a latitude from four to six degrees farther south on the Atlantic Coast. During the remainder of the year, from April to October, the weather is delightful. There are showers from time to time, but vegetation is kept fresh by the night dews and occasional morning fogs. July is the hottest month, but the days are tempered by sea-breezes, and the nights are cool.

EASTERN OREGON.

The climate of Middle and Eastern Oregon differs from that of the western part of the State in that there is much less rainfall in winter, and consequently more cold, while summer is more dry. But few days in winter, however, show a zero record. The rainfall in the lower valleys

throughout much of Eastern Oregon is sufficient to insure large and remunerative crops. Owing to the dryness of the atmosphere, cold is not felt there as it is in damp localities. Practically, winter generally lasts no longer than five or six weeks, and often not over three or four. February here is not infrequently similar to April in New York or Illinois, while March is like their May. The same may be said of the summers as of the winters—some hot weather, equal to that in the States mentioned, but scarcely ever more than a few days at a time; even then nights are always cooler in comparison, affording ample opportunity for comfortable sleep. The range of the thermometer is rarely above the summer temperature of Western Oregon, sometimes reaching 100°, but only at rare intervals. Ordinarily, the thermometer indicates 90° as about the highest summer temperature, and 10° as the lowest for winter. In the highest valleys among the mountains, the winters are short, but occasionally severe. Snow seldom falls before Christmas, and sometimes lies from four to six weeks, but usually disappears in a few days. The so-called "Chinook," a warm wind, is of great benefit to the country. It blows periodically, and melts deep snows in the course of a few hours. This warm atmosphere is caused by the passage of the wind across the Japan current. Spring begins in February, with warm pleasant weather, and lasts until the middle of May. At this season rain generally falls in sufficient quantity to give life to vegetation and insure good crops. The average temperature is 52°. Autumn weather in October and November is generally delightful. There are often frosts by night, but the days are usually warm and bright. The season is marked by showers, and also by thunder-storms in some localities. The mercury ranges between 55° and 70°. The rainfall of the year does not average more than twenty inches. South of Powder River it is not more than fifteen inches, increasing gradually to the northward.

SOUTHERN OREGON.

The climate in Southern Oregon is thus described by a local authority: "The Rogue Valley is the section where perpetual summer and early fall reign supreme. The winters here are enjoyable. Rain is never of the beating, driving kind, but falls straight down. The yearly rainfall is twenty-two inches. Cyclones and tornadoes are unknown. Ice one-half inch thick is rare at Grant's Pass, and during the winter just past there was not snow enough at any time to track a rabbit. The lowest the temperature went at any time was to 16° Fahrenheit, and that just at day-break. Farmers can plow almost any day during the whole winter. The summers are delightful, the thermometer rarely going above 95°; the nights are always so cool that a pair of blankets is necessary. Sultry, hot nights are unknown here. Showers come in the summer at proper intervals until July, and sometimes later, but usually July and August are dry months. Crops have never been known to fail, and a drouth is unknown."

The mortality statistics taken in connection with our national census show a smaller death rate for Idaho and Oregon than for any other commonwealth in the Union, Idaho standing first with a percentage of 0.33, Oregon following with 0.69, and prominent Eastern States following in this wise:

Ohio, 1.11; Maine, 1.23; Illinois, 1.33; New York, 1.58; Missouri, 1.63; Massachusetts, 1.77; Louisiana, 2.00. In the East, when in summer the thermometer gets up to 80°, people seek the shade; in this State they seek the sunshine from choice—there is a tonic in it at that temperature.

The rains, beginning the last of September, fall with increasing frequency, say from November 20, reaching their maximum in January. Diminishing in February, which is usually mild, they continue through May, falling then semi-occasionally and exerting no ill effect, except that the grain crop might suffer if far enough advanced. The rainfall during the summer months is light. Only twice in forty years have the grain crops been injured by untimely rains; for the season of harvesting is pre-eminently in the dry season. There are no cyclones, no drouths, no drouths, no sudden changes or disastrous atmospheric phenomena, no sluggish atmosphere which enervates in summer or generates virulent fevers in winter. The mean average temperature in July is about 68°, and that of January, 45°.

Naturally, the health of the different districts varies in accordance with location. Portland, the metropolis of Oregon, and of the whole region, is remarkably healthy, having, of course, its quota of diseases. The complaints incidental to childhood seldom prevail as severe epidemics. Typhoid fever appears, as elsewhere, as well as other ordinary diseases. Typhus fever never occurs. Cholera, which has been a scourge in the East, has never reached this part of the Pacific Coast. The inhabitants of towns situated on the banks of the rivers suffer more or less from malaria, as is the case elsewhere in places so situated. The farther back one goes from the coast, the more rarified is the air found to be, and in some respects the more healthful. Those who have a tendency to diseases of the respiratory organs, in many cases recover their health by a residence at The Dalles, Baker City, and other places in Eastern Oregon.

A well-known physician, a resident of Oregon for twenty-five years, in writing upon this subject, says: "For our somewhat remarkable immunity from malarial disorders, considering the extent and depth of our river bottoms, we are indebted to our northern latitude, to the daily sea-breeze borne to us from the waters of the Pacific, to our cool, bracing nights, and to the medium temperature of even our warmest days."

According to the official report of the Surgeon-General of the United States Army, the deaths from fever at the military posts in Oregon compare as follows with those at posts in other parts of the country:—

Oregon, 1 death in.....	529
New England, 1 death in.....	283
Southern frontier of Texas, 1 death in.....	67
St. Louis, Mo., 1 death in.....	113
New York Harbor, 1 death in.....	66

Medicinal waters have been discovered, which, in time, will attract great attention. Another strong argument in favor of Oregon's climate is in its relation to agricultural production. The superior quality of her wheat, famous the world over, clearly establishes and enforces the fact that Oregon has more sunshiny days and long, cool nights, and less intense heat in the maturing months—all necessary for the perfect growth of the highest grade

of wheat—than any other State. And not only for this cereal, but she has the best climate for oats, barley, corn, hops, grasses, flax, vegetables, fruits of all kinds, and berries of every kind imaginable that belong to the temperate regions. In a word, the climate of Oregon develops a rich vegetation, ripens abundant harvests, and is favorable to the growth of a strong, healthy race of people.

SOIL.

The soil of Oregon is as varied as its climate. In Western and Southern Oregon the soil in the valleys is a dark loam, containing a large proportion of vegetable mold, and having a clay sub-soil. In the bottom lands, near the water-courses, it generally consists of rich deposits of alluvium. Of such lands there are often large tracts of great fertility, termed "beaver-dam lands," which, as the term indicates, have been formed by the labor of this busy, amphibious rodent during countless centuries. The constituents of this soil are earthy deposits or *humus* of great depth, produced from decayed trees and other vegetable growths. These soils have a wonderful productive capacity. Under cultivation they are quick, light, and friable, yielding astonishing crops of hay, hops, grain, fruits, and vegetables for a series of years, without manure and with only indifferent plowing. The ability of the clay sub-soil to retain moisture explains, to some extent, the enduring qualities of the land. The bottoms are mainly covered with a deciduous growth of vine maple, alder, crab-apple, and salberry, with only occasional firs and pines, and as a rule, are confined to narrow valleys. Unlike prairie lands, they must be cleared (at a cost varying from \$15 to \$20 per acre) before they can be plowed. Usually, however, the wood and lumber thus secured will pay for the work, and the farmer will afterward find his reward in the abundance of his crops.

The soil of the uplands is somewhat inferior to that of the river bottoms. That of the undulating foothills and more tillable mountain sides is red, brown, or black loam. The more elevated lands afford excellent natural pasturage, and also produce good crops of grain and the hardier fruits and vegetables.

East of the Cascade Mountains, the soil is a dark loam of great depth, composed of alluvial deposits and decomposed lava, overlying a clay sub-soil. This, in turn, rests upon a basaltic formation, which is so far below the surface as to be visible only on the banks of the deep water-courses. The constituents of this soil adapt the land peculiarly to the production of wheat. All the mineral salts which are necessary to the perfect growth of the cereal are abundant, reproducing themselves constantly, as the gradual processes of decomposition in this soil of volcanic origin proceeds. The clods are easily broken by the plow, and the ground quickly crumbles on exposure to the atmosphere.

In Northwestern Oregon, adjacent to the Columbia River, although the dry season continues for months, this light, porous land retains and absorbs enough moisture from the atmosphere, after the particles have been partially disintegrated, to insure perfect growth and full harvests. This asser-

tion is so at variance with common experience that it might be questioned. Happily, it is susceptible of explanation. In spite of the fact that there is scarcely a shower between May and the following October, and that the average rainfall for the year does not exceed twenty inches, there is always the requisite moisture for maturing the crops. Paradoxical as it may be, if the rains were greatly in excess of this low average, damage would certainly ensue; and it is equally sure that if successful farming depended upon the limited rainfall, there would be poor harvests. The clouds supply only in part the moisture that is needed. The warm air-currents, surcharged with vapor, which sweep inland from the ocean up the channel of the Columbia River, prevent drouth. The effect of these atmospheric currents in tempering the climate has already been described. Their influence upon the vegetation is no less vital. The moisture with which they are laden is held in suspension during the day, diffused over the face of the country. At night it is condensed by the cooler temperature, and precipitated in the form of a white mist on every exposed particle of surface which earth and plant present. The effect is that of a copious shower.

In Southeastern Oregon, notably in the vast areas of fertile lands in Malheur and Snake River valleys, the soils are much like those of the North-eastern Oregon region, but there is less moisture. Except in a very small proportion of this region irrigation is necessary to successful agriculture. Happily, the water supply is abundant and easily applied. It is well known that the process of irrigation is one of the best fertilizers. The water brings with it enough mineral and organic matter to keep the land fertile, even though the same crop is raised upon it year after year; while the cost of irrigation is only about 50 cents an acre each season—hardly a fraction of the cost of artificial fertilizers considered essential in the East.

AGRICULTURE.

Oregon affords a vast area of farming lands, the best conditions to warrant the production of heavy crops,—without a failure for ages,—and a climate above all others, enabling the husbandman to work out-doors at something very month of the twelve. In its proportion of productive to waste lands, it will compare well with the average of countries of similar extent. In soil or in climate, or in any other condition affecting the growth of crops, the comparison would be vastly in favor of Oregon. The truth is, there is little land in that vast region that is not good for something, being adapted either to wheat, barley, oats, hay, pasture, fruits, vegetables, timber, mining, or something else. There are those who claim there is no State in the Union where there is less waste land in proportion to the total area than in Oregon; and, as remarked by an eminent traveler: "Here Nature does not divide her rain and sunshine into two great halves; as she metes them out in California. Here it rains and shines by turns, as smiles and tears alternate on those happy faces never distorted by immoderate laughter, nor drawn down by persistent grief." In many sections the grass is green the year round. The soil is as black and rich as the mud of Egypt. The farmer can seed all the fall until Christmas, or all the spring from February to May.

thus dispensing with extra labor. Harvest is prolonged indefinitely, just as long as the grain will stand. Indeed, we have seen such enormous crops cared for by so comparatively few farmers that the singularly brilliant and beautiful moonlight nights of that north land were made to ring with the sound of the reaper or mower until the "wee sma' hours."

In the proportion of production to population, Oregon stands at the front in wheat, oats, barley, and in the aggregate of all grains and of all food. The yield of wheat in 1889 equaled a proportion of over one ton for each man, woman, and child in the State. In this as in other elements of human food, Oregon is almost without parallel. The possibilities of the future in the development of her latent or undeveloped agricultural wealth are simply incalculable—almost beyond comprehension.

An impression has grown up that agriculture in Oregon is confined to growing wheat. This is as far from the truth as to suppose that Missouri's product is confined to corn and hogs. In Oregon the farmer raises wheat, oats, barley, rye, and corn (in the southern portion of the State chiefly), buckwheat, flax, hay, potatoes, hops, rutabagas, and almost every kind of vegetable that may be mentioned. While in the matter of wheat Oregon stands at the head of the national class, she stands with but few equals in relation to fruit and other productions mentioned. The area devoted to flax and buckwheat is not large, but is increasing. Sugar beets are among the productions, some tobacco is being grown, turnips and sweet potatoes grow luxuriantly in every part of the State, and no larger or better pumpkins and squashes are found anywhere. The bean crop of Oregon is something almost marvelous, while the grasses grown are not equaled anywhere. Alfalfa produces three or four crops, and, in Western Oregon, a growth of four or five feet high is common. Red clover yields two and three crops during the cereal season, and five feet is a common height. White clover grows abundantly.

The garden vegetables produced in Oregon embrace all the ordinary varieties known to the table—peas, beans, potatoes, egg-plant, pie-plant, cucumbers, onions, asparagus, parsnips, carrots, radishes, beets, cabbages, cauliflower, tomatoes, water-melons, cantelopes, musk-melons, citrons, and the like. The growth of all these vegetables, as well as the flavor, cannot be excelled. It has long since been demonstrated that Oregon is one of the best, fruit-growing States in the Union, if not the best, and the beauty and flavor of her orchard products have never been surpassed.

Wheat.—Wheat is the staple agricultural product of Oregon. Its superior quality has made it famous in the grain markets of the world, and insures for it the highest price. The yield averages from twenty-five to thirty bushels per acre, and often exceeds forty bushels on large areas. The berry is full and heavy, often exceeding by five to nine pounds the standard weight of a bushel (sixty pounds). There is practically no limit to the quantity which may be produced, except in the lack of farmers to till the soil. The surplus yield ever since 1870 has been enormous, considering the acreage. In 1887 not less than 300,000 tons, or 10,000,000 bushels, and in 1888 450,000 tons, were offered for sale. Of this great quantity, Western Oregon produces about one-third, and the country east of the Cascade

Mountains yields two-thirds. The inland means of transportation have often been strained to their utmost capacity in moving so large a crop; but recently-supplied railroad facilities by the Union Pacific Railway and leased lines, are rapidly doing away with this trouble.

Oats.—Oats also yield heavily, from forty to seventy-five bushels per acre, and are exported largely. The standard weight of a bushel of oats is thirty-four pounds, but the weight of forty and forty-five pounds to the bushel is not infrequent. Rye and barley are likewise profitably raised. In the most southern parts of Oregon corn also flourishes, but the average summer is too cool for this cereal in the northern section of the country.

Hops.—Hops are a very important product. They are grown on the river bottom-lands, and with proper cultivation a large yield of superior quality is obtained. The crops run from 1,000 to 3,000 pounds per acre. Over 2,300,000 pounds were produced last year. The principal gardens at present are in the Willamette Valley. The hop acreage might be profitably increased ten-fold, as the crop readily sells at prices ranging from 15 to 20 cents per pound, and sometimes 50 cents to \$1; and the export demand is steady. Some of the advantages connected with this industry are the certainty of a good crop, the early bearing of the vines, the extraordinary yield, the low cost of production, the facilities for securing suitable soil, poles, fuel for drying, and cheap (Indian) labor for picking. This crop has never suffered from insects or disease. Instances are common of hop-growers raising 3,000 pounds to the acre, and selling them at 25 cents per pound, or \$750 for the yield of each acre. The cost of production is placed at 10 cents a pound. The quality of these hops is only second to the best grown in New York, which are the finest in the country.

Flax.—Of recent years flax has been raised for export, and its culture is a permanent industry. To produce it successfully requires particular care; but farmers find it an excellent crop to rotate with wheat, and the large profits repay for the greater labor attending its cultivation. It is not unusual to obtain from 400 to 800 pounds of clean fibre per acre. The farmers in one neighborhood produced not less than 100,000 bushels of flax-seed in one season, which netted them the same number of dollars. There is no doubt that linen-making could be engaged in successfully, provided the necessary capital and labor could be secured for the enterprise, particularly as there is convenient water-power everywhere for driving any number of looms and mills.

Vegetables.—Potatoes, cabbages, onions, parsnips, cucumbers, and celery grow to large size. The potato-bug has never appeared, and potato diseases are unknown. Onions produce immensely on the low-lying lands. All the vegetables named thrive equally well, and give abundant crops in both sections of the country, notwithstanding the great climatic distinctions which exist east and west of the Cascade Mountains. Melons, tomatoes, and some of the fruits, however, flourish better in the warmer and drier atmosphere east of the mountains.

Although wheat-raising is the least profitable of any crop, the following table, showing the results obtained from a quarter-section of wheat, shows that in Oregon money can be made even on that. The table is based

upon actual results, and the price—45 cents per bushel—is that paid in 1859 at a remote shipping point. The price at Portland was about 60 cents per bushel.

EXPENSES

Fall plowing, 160 acres, at \$2.....	\$ 320
Seed wheat, 1½ bushels, at 45 cents.....	108
Sowing, at 75 cents	120
Harvesting, at \$2 per acre.....	320
Threshing and hauling, \$2.50 per acre.....	400

Total cost.....\$1,268, or \$7.91½ per acre.

RECEIPTS.

5,600 bushels of wheat, at 45 cents per bushel.....	\$2,520
Less cost.....	1,268
Profits.....	\$1,252

A profit of \$7 80 per acre—a sum sufficient to purchase at Government or railroad prices more than three times the amount of land that produced it! Mixed farming and stock-raising or fruit-growing will bring far better results.

FRUIT-GROWING.

No finer fruits of the kinds raised in Oregon—in flavor and size comparing favorably with the best California varieties—are produced in any quarter of the world. Fruit trees grow from six to eight feet the first year, and bear fruit the second, third, or fourth year, according to variety. They thrive in the valleys as well as on the foothills, and up to a considerable height in the mountains, but especially in sheltered, dry soil. At recent fairs, yearling prune, peach, and plum trees, eight feet and four inches high, and yearling cherry trees seven feet high, were exhibited. Apples, pears, peaches, grapes, cherries, and the various small fruits, which for size, beauty, and excellence of flavor are not excelled on the globe, are grown in the orchards of that region. Pears blossom along the Columbia in February and March; harvest-apples ripen in July. Oregon gathers from its loaded orchards about 2,500,000 bushels of large fruits per year, with tons upon tons of other fruits. Immense drying and canning establishments have been started, to convert the fruitage into exportable shape. Since the completion of the Oregon Short Line, a division of the Union Pacific System, carloads of these delicious products have been shipped eastward in various forms; and the man who has a good orchard, has his competency assured. We are now importing millions of pounds of dried fruits (especially prunes) from Europe annually; hence there is no danger of overdoing this business. There is a grand field in this country for vineyards and wine-making.

Apples.—Apple trees are indigenous to the soil. The fruit of the orchard is large, highly colored, and of delicate flavor. Trees are strong and hardy, and so prolific that, without due care, they are likely to exhaust themselves with overbearing.

Prunes.—Prunes thrive as well as in any other part of the world. The trees are healthy and vigorous, and bear quite early. The fruit is rich, mellow, large, and beautiful, and has a delicate, aromatic taste. It is excellent for table-use, and superior for drying and preserving.

Plums.—Plums are prolific, sweet, and of fine flavor. There are many varieties, and the trees are hardy and reliable bearers. Some varieties are magnificent in size and color.

Pears.—Pears of all the best-known varieties, early and late, are produced in profusion. The trees are hardy, bearing at a remarkably early age, and yielding sweet, mellow fruit, which cannot be excelled either in size or in flavor. Some species attain a weight of three pounds and upward.

◦*Cherries.*—Cherries which cannot be excelled anywhere, grow in unlimited abundance. The trees are hardy and heavy bearers, and the fruit is so superior in size and beauty that its value for shipping and market purposes leaves nothing to be desired.

Peaches.—Peaches have been cultivated satisfactorily along the Columbia River, as well as at many points east of the Cascade Mountains. With proper care the peach orchards may be made to yield not alone for home consumption, but for export.

Writing on the subject of fruit-raising in Oregon, a well-known fruitman says: "From the best authority we are informed that canners have paid for apricots, peaches, choice plums of white varieties, and Bartlett pears, 3 to 4 cents a pound, and for cherries 6 to 8 cents. This averages \$1.50 to \$2 per bushel for all the rest, and \$2.50 to \$4 a bushel for cherries. It requires no argument to prove that these are paying rates. It is upon such returns as this that we hear of prune orchards giving \$350 an acre annual income, and even higher than that. An orchard within eight miles of Portland, where the trees were six years old, yielded \$2,460 net profit on three and a half acres. At Eugene City, S. P. Sladden, a practical grower, has set out about thirty-five acres, mostly in fine prunes. He is expecting \$500 an acre in three or four years from this date. In the Ashland precinct, 265 acres of orchard have been set out in the past few years."

Oregon is the very Eden for cherries, strawberries, currants, raspberries, gooseberries, and blackberries, and in the southern part of the State, we may add figs, hard and soft shell almonds, nectarines, apricots, quinces, and English walnuts. The following correspondence will give an idea of berry-growing and its profits in this State:—

"Seeing your communication asking about berry-raising, I will answer to the best of my ability. With regard to strawberries I find that 6,969 hills will grow on an acre, two and one-half feet apart. At an average of two pounds per hill, we have 13,938 pounds of berries, which, at 5 cents per pound, bring \$696.90.

"Blackberries at five feet apart will make 1,752 hills per acre. At eight pounds per hill, which I consider a fair average, as I had hills last year which produced twenty pounds, this will amount to 13,936 pounds; at 5 cents per pound, they will bring \$695.80.

"Raspberries will grow about the same number of hills per acre, and yield at least five pounds per hill, which is 8,710 pounds. At 8 cents per pound this would amount to \$696.80. I speak of Gregg Blackcaps.

"The length of season for strawberries is owing to whether you irrigate or not. I do not irrigate my ground, and, as a general thing, the berries begin to ripen about May 20, and last till July and August. We had blackberries from July 4 until October. Raspberries only last about a month or six weeks, but are a much surer crop than blackberries, as the vines are hardier."

Oregon nurserymen booked orders for 3,000,000 young fruit trees for the trade of 1889.

One canning company in Portland put up the following fruits in 1887: Small fruits, 54,500 pounds; cherries, 17,000 pounds; plums and prunes, 44,000 pounds; pears, 190,000 pounds; apples, 750,000 pounds; quinces, 7,500 pounds; tomatoes, 275,000 pounds; peas and beans, 242,000 pounds—1,063,000 pounds of fruit, and 517,000 pounds of vegetables.

While the prune industry is but in its infancy, several orchards are now bearing that will each yield 100,000 pounds of prunes when in their prime, and there are many that will yield 25,000 to 50,000 pounds each. It is easily possible for a prune-grower to manufacture his own crop into the choicest of cured fruit at an expense of not much over $1\frac{1}{2}$ cents per pound; and 2 cents, at most, will take the fruit from the trees, and pay all costs of curing and packing in the best marketable shape. Oregon easily marketed 1,000,000 pounds of first-class prunes in 1889, because the prune orchards, though not numerous, are rapidly coming into bearing. Oregon has the world for a market for most of those products, while for all of them the demand is far in excess of the supply.

CATTLE-RAISING.

Oregon has for years been the great cattle center of the Pacific Northwest. It is also noted for its production of horses and sheep. The mild winter climate, the fact that the native grasses remain green during most of the year, and the ease with which cultivated grasses can be raised, together make Oregon an excellent country for raising every kind of stock. The general practice of Western Oregon farmers is to provide fodder for only a part of the year, allowing stock to roam at large during the greater part of it; while in Eastern Oregon vast numbers have never tasted prepared food. In the cold weather that is occasionally experienced in winter, live stock suffers sometimes, but, as a rule, it does well enough in the open air all the year. While stock-raising is pursued in all parts of Western Oregon, it will be observed from the above that the region east of the Cascade Mountains is most favorable to that pursuit.

As is well known, bunch-grass affords all the elements of nutriment necessary for bone, muscle, and flesh. It is as strong as oats or barley, and in its perfection, will supply the animal with as much nourishment in a day as the quantity of timothy, clover, or hay it may eat in the same time, with the usual amount of grain added. The animals fed on this bunch-grass are well

rounded, hard, and solid in flesh, and not large-bellied like those fed on ordinary grass. It is a mistake to suppose that bunch-grass pastures contain no other grasses. Rye grass grows on low lands and hillsides. It resembles rye in growth and appearance, and makes excellent hay when well cured, yielding largely. Stock will not eat it on the range, however, except when severe winters come; then they get through the cold weather nicely on the long stems that stand above the snow. All through the bunch-grass region the smaller grasses cover the ground between the clumps of larger growth. It has been demonstrated that where sheep and other stock range, and the bunch-grass is trampled out, a number of other native growths come in place of it, and that such pastures, supposed to be worn out, now support much more stock than in their primeval condition.

The stock ranges of Baker, Malheur, and Grant counties, in Eastern Oregon, are among the best in the West. The climate is in every way suited to that industry. But little rain falls in the summer, and not much in winter. Cattle have grazed in some of these valleys for twenty years without other food than that obtained by them on the ranges, and have never suffered serious loss. Generally, they are fat and in good condition in the spring, but occasionally they suffer some deterioration. As on all ranges, a small percentage die every winter from various causes. Running water is abundant in the streams, fed constantly by the living springs and melting snow of the mountains, and stock does not suffer for lack of water during the driest season. It is estimated that 250,000 cattle are grazed in these counties, valued at \$4,000,000, though the assessor's returns fall far short of these figures, both in number and value per head. The stock industry dominates, and, however extensive the farming settlements may become in that region, this pursuit will always be an important and profitable one.

The largest owners of horned stock are improving its quality by infusing fine blood into the herds. There are numerous breeders of Short-horns, Galloways, Herefords, Holsteins, Alderneys, and Devons of pure race. Particular attention is paid to dairy stock by such cattlemen as combine farming and stock-raising. This large introduction of fine blood into the cattle herds in Oregon will soon wonderfully increase their value, and greatly add to the profits of the business. A steady profit of twenty per cent per annum by Oregon cattle-raisers is really a common result. Forty and fifty per cent has been realized, but the writer who lays down such figures as an average is very liable to involve his reputation. It is not uncommon for experienced stockmen, who know how to utilize every advantage, and to guard against nearly all discouragements, to do business for a time on capital borrowed at one per cent per month, and to make a good margin on the investment. The writer has in mind a gentleman whose large herds roam in Southern Oregon, who, for five years, had made the very handsome profit of forty per cent per annum. He has been especially judicious in his purchases and sales, exercising great care and judgment in the selection of a range and in his system of ranch improvements, and has been so fortunate as to secure some of the best men on the plains to carry out the practical workings of his business. Of course, with the present low prices, such profits are not now possible, but it is a good time to buy stock and start in

the business. Constant care and study on the part of the owner of stock is a grand point.

There are several herds of cattle near the Oregon Short Line, in Eastern Oregon, of from 25,000 to 30,000 each. About 50,000 head of beeves are sent to market annually. Many of these are shipped to Chicago and other eastern points over the Union Pacific Railway, while a considerable number find ready sale at Portland and other Pacific Coast markets. Union Pacific stock trains are pushed through on passenger schedule, and rates are made so reasonable that the Oregon stockman loses little by his remoteness from eastern consumers.

Ontario and Baker City are the objective points for those who desire to investigate this industry in Eastern Oregon, while Portland should be the starting-point for any one desiring to look up a location in the region west of the Cascade Mountains.

DAIRYING.

The climate and fine natural pasturage of Oregon greatly favor the pursuit of the dairy business. The cool summer nights, the abundance of pure, cool spring water, the freedom from sultry and wet weather and thunderstorms during the warm season, facilitate the production of butter and cheese. Of late years, dairy farms have been started in various parts of Western Oregon. In the Willamette Valley, on the bottom-lands of the Columbia River, where splendid grasses grow spontaneously during three-fourths of the year, and in the Cascade and Coast ranges, a number of well-appointed establishments of this kind are successfully carried on. There is always an active home demand for good butter and cheese, and the surplus product finds a ready sale in other markets of the Pacific Coast.

Nothing can more strongly impress upon the reader the advantages of this broad region of free pasturage than a comparison with the most famous dairy countries elsewhere. In New York and Ohio vast wealth is accumulated by dairymen, who feed their cattle four to six months out of every twelve, and the balance of the year pasture them on lands worth from \$50 to \$200 per acre. Swiss butter and cheese are famous the world over, and at Cham is the largest milk-condensing factory in the world, using the milk of 6,000 cows. This milk is put up in cans, transported half-way across Europe, and across the ocean, pays duties and is sold at less than American made. The best lands are worth \$500 per acre, and cows \$100 to \$150 each. The feed is entirely grass in summer and thirty pounds of hay per day in winter. Oil cake, cotton-seed meal, ensilage, etc., are unknown. The cows are kept in clean, stone stables, and only allowed to go out a short time each day for exercise. It is not uncommon to keep 100 cows on 150 acres. All the liquid manure and droppings are saved and put on the meadows, which are mowed three times a year. During the milking year of nine months, the average per cow is ten quarts per day. This is sold for 2 or 3 cents per quart.

In Oregon good dairy lands can be had for the taking, or, if the settler desires to purchase, he can do so at from \$3 to \$8 per acre. Butter sells at

from 30 to 40 cents per pound; cheese 15 to 20 cents; good cows cost from \$35 to \$45. The dairyman can hardly go amiss for a location. Every county in the State still offers good openings in the way of free or cheap pasture lands, good water, desirable climate, and good markets.

WOOL-GROWING.

Sheep husbandry is altogether as profitable in Oregon as cattle-raising, and in some localities sheep are crowding cattle from the ranges. A conservative local authority writes as follows from The Dalles, which is headquarters for sheepmen in the Columbia Valley: "Though at the present time wool values have a depressing aspect, and complications about tariff talk and prices are more serious than we remember them for a number of years, yet in daily conversation with wool-growers we find no sentiment expressed that is not entirely suggestive of confidence in the future prospects and profits of their business, and the public generally will be interested in the following exhibit of their estimated gains in present conditions. This is no rose-colored view, but is the result of interviews during the past two weeks with several prominent wool-growers—their own figures, in fact; and they all conclude in good humor, 'There is more money in sheep than in anything else.' The expenses are placed at the maximum, and the returns at the minimum, of values, and is suggestive of what any wool-grower can do in Eastern Oregon and the State of Washington, who has the necessary money, brains, and perseverance.

INVESTMENTS.

2,500 stock sheep, 1,250 ewes, 1,250 wethers, \$3.....	\$5,000 00
Investment in land, etc	1,000 00

EXPENSES FOR TWELVE MONTHS.

Interest on \$6,000, at 10 per cent.....	\$600 00
Loss, 50 head at \$2.	100 00
Two men with board at \$100.....	1,200 00
Dipping 2,500 head at 2 cents.	50 00
Shearing 2,500 head at 6 cents.....	150 00
Sacking, and boarding shearers.....	60 00
Sacks, 50 at 40 cents	20 00
Hauling 17,000 pounds wool at \$1.....	175 00
	<hr/>
	\$2,355 00

CASH RETURNS.

Wool, 17,500 pounds at 15 cents.....	\$2,625 00
Wethers, 400 head at \$2.50	1,000 00
Lambs, 600 at \$1.50.....	900 00
	<hr/>
Profit	\$2,170 00

"This calculation is based on seven pounds to the fleece, and on 1,250 ewes producing 1,000 lambs, replacing the wethers sold by lambs, as is usual; and also upon all help being hired. By the sheep owner's doing one man's work, fully \$600 more would be cleared, giving an annual profit of \$2,770 on an investment of \$6,000."

Sheep farmers prefer the ranges close to the mountains, where they say the greatest variety of grasses grow on which sheep thrive best. Lambing time is in April, and shearing in May. In June the flocks are driven to the mountains, where they fatten and the young become vigorous. These mountains are often covered with open pine forest, through which very nutritious grasses grow, different in nature from the bunch-grass of the plains. By common agreement sheep owners occupy the range upon which their flocks first fed, and the rights of first-comers being thus respected, all contention is avoided. The mountain ranges are unsurveyed, but much of the land in the Blue Mountains is valuable for its timber as well as for its grasses, and when cleared will produce good crops of grain. All the Blue Mountain region is well watered. The wool produced in the Pacific Northwest is fast taking rank with the best fleeces which reach the East, and has a reputation of its own in New York and Boston.

At the Centennial Exhibition three medals were awarded to Oregon wools. On one entry by the State of Oregon, the committee reports as follows: "Some very fine specimens of Merino wool of good staple, very much resembling Australian wool, and giving evidence that this State can produce wool of very great value." On an exhibit made by S. G. Reed, of Portland, the report reads: "Three samples of Leicester combing wool, and three samples of Cotswold combing wool, noticeable for long staple and bright luster." On another entry by Mr. Wilkins, of Lane county, the report reads: "An exhibit of a sample of Cotswold wool, with twenty samples of wool improved by a series of crossing, pursued for many years, of high-bred Cotswold bucks and high-bred Oxford Down ewes, producing wool retaining the strength of the original Cotswold, but with greatly increased fineness and softness, and total absence of hair."

The above were the only exhibits of Oregon wools. The Oregon City woolen mills made an exhibit of fancy cassimeres and blankets, receiving a medal therefor, and the following committee-report: "Fancy cassimeres, substantial in fabric and good design; also blankets of good quality, all marked for their cheapness, resulting from the availability of Oregon wools at low cost."

The exhibit of the Mission woolen mills of San Francisco, which from their commencement until now, it is understood, have used largely of Oregon wools, the report reads: "Blankets, carriage blankets, and lap robes, made of Pacific Coast wool, the higher qualities unsurpassed in excellence of fabric, softness of finish, and tastefulness of borders."

Oregon could almost grow the wool needed to clothe a nation. To grow it would enrich thousands of husbandmen, and to manufacture it would build up thousands of important cities. Rheims began in 1801 the manufacture of Merino, and now has some 60,000 workmen running 200,000 spindles. Bradford, where the great English worsted works are located, has grown from 14,000 to 100,000 inhabitants, as a direct result of establishing the factories in question. It may also be stated for the encouragement of the woolmen that among economists it is a recognized fact that, taking the world as a whole, the supplies of wool and mutton are not keeping pace with the increase of the wants of mankind. In the United States the stock of

sheep and lambs has increased during the past ten years by about 15,000,000, but during the same interval the population has increased by a more than corresponding extent, so that we are scarcely keeping pace with our own requirements.

It is the same as regards Canada, where there are not sufficient sheep to furnish the clothing required for their own use. Within the past ten years the sheep supply of Germany has fallen from 28,000,000 to 25,000,000; of France, from 30,000,000 to 23,000,000, of Hungary, from 15,000,000 to 9,250,000; of Austria, from 5,000,000 to 3,750,000; and even Norway and Sweden have fallen away to the extent of 200,000 head. Excepting Australia and the River Platte, there has been no such increase of flocks and herds as would suffice to repair the deficiencies of other countries.

Oregon is getting on well toward supplying her quota of wool and mutton. In 1870 she had 318,123 sheep; in 1880, 1,083,162; and in 1887, 2,600,000. Her wool production in 1888 was over 16,000,000 pounds, and her mutton sales 300,000 heads, her total income from this industry reaching nearly \$3,500,000. One firm shipped eastward from Oregon in the "double-deck" cars of the Union Pacific Railway, about 50,000 head of wethers in 1888. This opening up of Eastern markets by the Union Pacific Company will greatly stimulate the industry. While quite recently it was a matter of concern as to how to dispose of Oregon mutton, the fast trains and low freight rates have solved the question. The annual wool production is about 16,000,000 pounds.

HORSES, HOGS, ETC.

Oregon has about 150,000 horses. While many of them are what are known as "half-breed" stock, yet horses of an excellent type are also largely raised. The soil and climate, combined with good blood, have produced not only the best draught animals, but also good trotters and carriage horses. Much money has been invested in fine imported stock, from the heavier Percherons and Clydesdales to the fleetest thoroughbreds. The horses raised east of the Cascade Mountains excel those of other sections in speed. This is due to the bunch-grass pasturage and the distance to the watering-places. The animals sometimes go on a fast trot for ten miles from their feeding places to water, thus developing muscle from their birth. In the bunch-grass districts the feed costs nothing. It is well known that horses can "rough it," and find their own living the year round better than either sheep or cattle. They will paw the snow from their pasturage and do any necessary amount of traveling, with ease, to secure sustenance or drink.

One of the greatest horse ranches in the West is that of the Oregon Horse and Land Company, whose headquarters are near Ontario, near the confluence of the Malheur and Snake Rivers, Eastern Oregon. In fact, this Company has several ranches located in Lost Valley,—one at the mouth of Sucker Creek, near Snake River, one at the three forks of the Sucker; also the old McCusick Ranch, on the Owyhee Creek. The range occupied is 85 by 150 miles, in Idaho and Oregon. The stock of horses owned were originally well-selected Oregon mares, which have since been bred to

Norman-Percheron horses; and to-day the average of the entire band is probably not exceeded on the Pacific Coast. This Company are the largest horse-owners in the United States, having over 10,000 head of fine, large horses. They have purchased many fine stallions from the breeding farm of M. W. Dunham, Wayne, Ill. Besides the above, they have added of their own breeding in Oregon. They have in use about 300 stallions on their ranches. During the past season their shipments to eastern markets were by train loads. The Company began business about six years ago, succeeding one or two individuals owning ranches and bands of horses aggregating 5,000 head. They have rapidly come to the front as the leading horse owners of the Pacific Coast.

These Oregon mares are purchased at from \$30 to \$40 each. The thoroughbred stallions cost from \$500 to \$2,000 each. The first cross results in an animal much valued in large eastern cities for street car and other purposes, and sells readily at three years old at \$125 to \$150. Such an animal costs to raise not to exceed \$10, exclusive of interest on the investment.

Growing and curing pork is another source of farm income, as yet but little encouraged in Oregon, but profitable, even in a small way. All last fall and winter meat-packers paid 8 cents per pound for good hogs. There is not a single thing in the condition of the climate or productions to enforce the import of pork. Oregon has the proper feed out of which to make good pork; and it does make some, but not enough. Hams, bacon and lard are largely shipped there from Chicago, all of which could be easily cured at home.

Poultry can be made to pay well, for there are good markets for eggs and fowls. This is already done, but could be extended considerably and made more of a regular business. Almost every housewife will tell the reader that she pays, on an average, 50 cents for chickens, and about 25 cents a dozen for eggs. For other kinds of poultry the prices are proportionately high. Nothing pays better, when properly carried on, than raising poultry as one branch of the farm work.

Bee-keeping is an attractive and profitable business. There are a great variety of honey-producing flowers in every part of the State, and in Western or Southern Oregon it would be difficult to find a season when the bees might not be pasturing.

A prominent authority says: "Farming and stock-raising should be, in Oregon, regarded as parts of one great industry, in which neither can reach its highest and best development without the other. They go together naturally, and we had almost said necessarily, and complement each other so nicely that their separation must be regarded as in some degree anomalous. The farmer as a stock-raiser is a farmer in his natural condition. It is an abnormal state of affairs when the two legitimate coördinate branches of his business are separate, or when either is neglected. The old nomadic life of the Orient, in which the cattle on a thousand hills were a man's only possessions, and their supervision almost his only industry, and the modern bonanza farming of California and Dakota, in which live stock has no part, show two extremes, both of which are inimical to civilization and material

progress. The power of development of our resources, and the solid, growing prosperity of our nation are largely consequent upon the fact of the general division of our lands into farms of reasonable dimensions, occupied by men who realize that the flock and herd are as necessary to the successful prosecution of their business as are bountiful harvests and well-filled granaries. In improving the one, therefore, do not fail to correspondingly develop the other. The highest type of agricultural prosperity means the neglect of nothing which may tend to keep up a well-studied equilibrium in these things—first-class stock on a farm in first-class condition, and all under the management of a first-class farmer.”

OREGON LANDS.

In Western Oregon, valley lands preponderate; and here, in Western Oregon, is the gem, the *emerald* of the Pacific Coast. It is the Willamette Valley, of which Hon. Samuel Bowles once wrote: “Never beheld I a more fascinating theater for rural homes; never seemed more fitly united natural beauty and practical comfort, fertility of soil and variety of surface and production; never were my bucolic instincts more deeply stirred than in this first outlook upon the Willamette Valley.” It is about 150 miles long and 50 miles wide, containing 125,000 inhabitants—about half the present population of Oregon; and if it were as settled as Merrimac Valley, it would have 1,076,000; or, as the valley of the Delaware, it would have 2,000,000. It will produce anything a reasonable farmer would ask, *and there has been no failure of crops* in it since the first settlement of the country, some forty-five years ago.

This valley stretches from Portland on the north to twenty miles beyond Eugene City on the south, and covers a great portion of eight counties. The area of the tract is stated roughly at about 4,500,000 acres. Not much over one-fifth of this great area is under cultivation. The great drawback to rapid improvement in the totals of the available products for sale or export is the extensive acreage in too few hands. Many of the early settlers in the valley have used the many opportunities their position gave them to add field to field, and even farm to farm. The old donation claims gave a half section to the man and the other half of the section to his wife. Many of these whole-section men have bought or otherwise acquired the quarter-section homestead or pre-emption claims joining their own wide section. In very many cases of this kind, not one-half of the land owned is put under cultivation, but lies, as nature left it, covered with rough pasture or light, scattering rosebush. Time, and not a long time either, will redress these evils, and the passing away or retirement of the present generation of owners will scatter their precious acquisitions. There is not much Government land in this valley, but unimproved tracts can be bought at \$5 to \$15 per acre, or improved farms at \$20 to \$40.

The Willamette, a navigable river, rises in the Calapooia Mountains, and flows the entire length of the valley. Its general course is north, and in its flow it gathers up the waters of forty-two streams, some of which are navigable for steamboats of ordinary size. The smaller streams are well below the general level of the country, making the drainage perfect.

Umpqua is another of the famous valleys of Oregon. It is north of the Rogue River country, and between the mountains of the Calapooia spur and the Coast Range. The climate is genial, and very even throughout the year. The Umpqua Valley has an agricultural capacity equal to any in Oregon, except the Willamette and Umatilla. The only resemblance to a valley it presents, as a whole, consists in a basin-like depression which the center of the country forms when contrasted with the high mountains encompassing it. The Calapooias on the north, Cascades on the east, Cañon and Rogue River Mountains on the south, and that portion of the Coast Range known as the "Umpquas" on the west, hem it in with high walls of rock and timber. The interior of this great basin is composed of small valleys, plains, cañons, gorges, and mountains. Formerly the Umpqua was a great stock country, but gradually its pastures have disappeared before the plow, and cattle have given way to grain; still, the stock interest is considerable. On the bottom lands, the excellent winter pasturage, at a season when stock on the Atlantic Coast are being fed on hay, renders the Umpqua region especially adapted for dairying. When the timber portion has been cleared of its dense growth of trees and shrubs, the flats, hills, and bottoms become extremely valuable for agriculture and grazing. The soil is generally a dark mold, derived from the decomposition of vegetable matter, such as leaves, fallen trees (which have been falling for ages), mingled in the valleys with the deposits brought down from the mountains in seasons of high water. A rich loam is frequently met with. As a fruit-growing section, it is unsurpassed, and is a very desirable region—we may say one of the best in the State—for sheep and wool production.

Rogue River Valley lies midway between the Willamette and Sacramento Valleys. It is especially noted for its fruit, ranking, in this respect, equal to the most favored places in the country. The climate is splendid the whole year through, and the soil is prolific. The crops of grain and vegetables are marvelous in the eyes of the eastern farmer. The soil of the foothills is quick, rich brown loam, and, in the valley proper, a deep, rich black, vegetable loam. The valley has the best of local markets, and good transportation facilities to Portland and San Francisco.

Rogue River flows through the country for about forty miles, and furnishes a fine valley of rich, sandy loam for about eighteen miles. The valley is from one to four miles wide for this distance, backed with high, rolling hills, covered with an excellent growth of timber. Below this valley the river cuts its way through the mountains to the sea, with but little tillable land on either side. Rogue River is a beautiful stream, with an average width of about 300 feet, and a depth of three to four feet, with a fall of twenty feet to the mile. Williams Creek and the Applegate River form a narrow valley of very rich land about thirty miles long. These valleys are already noted for their wonderful productiveness. Jump-Off-Joe, Grave, and Wolf Creeks are streams of some importance, each forming small valleys of agricultural and grazing lands. The Illinois River, with its tributaries of Deer Creek, Sucker Creek, and Althouse Creek, form the valleys upon the western side of the country. There are upon each of these streams

many acres of fine agricultural land, much of it still covered with brush.

There is considerable Government and railroad land in this region, mostly rolling hills and small valleys, covered with timber and brush. Small tracts of Government land, partly open, can be found by taking time to hunt it out. Better land can be bought for small sums, and many places with improvements are for sale cheap by persons who have not perfect titles. Many pieces of excellent land are held here by miners and hunters who are not familiar with its value, and as they know little, and care less, about agriculture, their property can be bought very reasonably. To people of small means, who are hunting desirable homes, this section offers many inducements.

Aside from the Willamette, no valley in the State attracts more attention than that through which flows the Umatilla River. It embraces the famous wheat-growing region of the northern portion of Eastern Oregon. Umatilla county is very extensive, and its agricultural capacity is simply enormous. The soil is of the richest known in the State, and peculiarly adapted to the production of cereals. All these produce abundantly, especially wheat. Aside from this, the stock interest of Umatilla Valley is very great. Tens of thousands of sheep and cattle are wintered in the foothills, and pastured in the mountains in the summer. There are half a dozen bright, active, thrifty towns in this famous region, with good schools and churches, and good society. The immigrant who intends to follow stock-raising, dairying, or general farming, will find all the conditions favorable in Umatilla Valley.

This region is well watered by the Umatilla River and its tributaries, such as Butter, Wild Horse and Birch Creeks, and others in the central portion, and the Walla Walla, Tumalum, and Pine Creek, further north. There is also an abundance of springs, and water is found almost everywhere at a depth of from fifteen to sixty feet. Lying along the base of the Blue Mountains, is a soil that, in patches of 1,000 acres, has averaged thirty-five bushels of wheat to the acre, while smaller fields have averaged fifty. Umatilla was formerly a great stock region, but that industry has of late years been superseded largely by wheat-raising and wool-growing.

Another of the fertile and pleasantly-located valleys in Eastern Oregon is Grande Ronde, in Union county. It contains upward of 280,000 acres of the best farming lands, and its soil is adapted to wheat, rye, oats, barley, and all kinds of vegetables. As a stock-raising region it is unsurpassed. It is one of the most fertile valleys on the Pacific Slope, well watered, and very productive of fruit, grain, vegetables, and hay. Wheat often yields from forty to fifty bushels to the acre, and oats and barley from sixty to eighty. Grande Ronde River flows in from the Blue Mountains, and follows an exceedingly crooked channel through the valley. There are many similar streams running down from the mountains, and along the foothills copious springs break forth, thus affording an abundance of water, which converts most of the valley into a natural meadow. Timber is conveniently near in the surrounding mountains. The climate is subject to greater extremes

than that of the region west of the Blue Mountains, though the winters are not usually severe.

A section of this region, as yet but thinly settled, is the beautiful Wal-lowa Valley. The valley proper is some forty miles long and about twenty wide, including the arable foothills. It is attracting much attention from immigrants looking for cheap yet desirable lands

There are several small valleys in Union county. One of these, Indian Valley, situated north of Grande Ronde Valley, is quite thickly settled, and is a rich grain-producing section. Pine Valley is a very beautiful place, nestling high up in the roughest part of the Eagle Creek Mountains, very much isolated, but containing at present about 200 families. Eagle Valley and Lower Powder River, in the southeastern part of the county, are occupied by people who are engaged in stock-raising.

Among other fertile valleys are the following: The Columbia Valley, from the mouth of the river, 260 miles east, forms the boundary of Oregon and Washington, and the strip of valley land on both sides varies from 2 miles to 30 in width, or an average, perhaps, of 10 miles. The Columbia, from that point where it turns north, runs through Washington 300 miles, and the valley has an average width of 80 miles; Josephine, 25 miles long and 4 wide; Klamath, 50 miles long and 15 wide; John Day, 50 miles long and 5 wide; Willow Creek, 30 miles long and 8 wide; Birch Creek, 20 miles long and six wide; Powder River, 10 miles long and 5 wide; Jordan River, 15 miles long and 5 wide; Burnt River, 8 miles long and 5 wide; Snake, 100 miles long and 10 wide; Des Chutes, 50 miles long and 5 wide. In addition to these are many other streams with valleys containing hundreds of thousands of acres of land no less fertile and valuable than those detailed.

There are still remaining large quantities of foothill lands yet unentered, which, if put into their appropriate crops, are more desirable than any level land, mixed among tracts less valuable. These lands are especially suited to the man who, with patience and the help of his family, will soon make them into the most valuable in Oregon. These lands must not be confounded with high, rugged hills. They are similar to the high, rolling lands of the eastern States, and are timbered. The foothill farmer of Oregon is among the most prosperous of the State, if not on the American Continent. He has exceptional advantages over his brethren in the valleys, in his facilities for stock-raising. He has untold acres in the upper hills for "out range," upon which he can herd his stock in the summer months, and where he can, without difficulty, cut hay enough to feed his cattle and sheep in the short winter season of a few weeks. On these foothill lands he can raise grain and the best of fruit, grapes and vegetables, and can always have flocks and herds of cattle. With the aid of side-hill plows, these slopes can be utilized for raising grain of all kinds, while for orchards and vineyards, no better location can be found anywhere. There is a good deal of fair Government land in these foothill regions, and some for settlement through the railway land departments.

It is gratifying to state that the valleys of the foothill counties of Oregon are coming to be appreciated. It is indisputable that the localities

verging on the Cascade, Blue, and Coast ranges are among the most productive regions in the State. The inconveniences of early days have all passed away, together with the often rapid getting of money, and with it the alternate enforced idleness.

The Oregon State Board of Immigration has the following to say about Government lands: "There has always been more or less misapprehension among immigrants regarding Government lands in this State, the general idea being that there are millions of acres of such land lying in the valleys, and all of it ready for the plow. This is an error. While it is true that in some portions of Eastern Oregon the new-comer will find much Government land of a bunch-grass nature, upon which he can locate, still he must not expect to find much of it in the vicinity of towns or railways; it is generally back toward the hills. In the western and southern portions of the State all the Government land is timbered or brush land. In some cases the timber is heavy—very heavy; in other places it is light or heavy brush land. There is no prairie Government land in either Western or Southern Oregon, but quite large areas in Eastern Oregon. Along the foothills there are some sections of Government land denominated brush land, and here and there in each quarter section a few acres of open land. This is true of the locality between Forest Grove and Astoria. It is true of some portions of Columbia county, Washington county, Lane and Linn counties, in Western Oregon. In the southern portion of the State, in the Rogue River and Umpqua Valleys, and in the counties of Jackson and Josephine, this land may be found. A part of this lies in the small valleys and along the streams. These tracts are not extensive, and a comparatively small proportion of the whole is available for immediate cultivation. It is possible for the immigrant to find now and then an excellent location on Government land in the localities named here, but it is a mistake to say that 10,000 immigrants can be so fortunate. If he must have Government land, the new-comer will have to take his share of heavy or light timber lands, removed somewhat from the lines of transportation and towns. These claims will be valuable by and by, and for the present will, if looked after, provide a good home for the immigrant family. But that, properly looked after, means much patience and industry. It is best that the new-comer should realize this truth from the start. Land without timber will be found in Eastern Oregon. These are bunch-grass lands, and along the northern tier of counties,—Wasco, Umatilla, Gilliam, and Union,—suitable for diversified farming. In the southeastern portion of the State, or what is known as the Klamath country, the Government lands are especially adapted to stock-raising."

It will be observed from the foregoing that Oregon's immense area of arable public lands is not in large bodies, but in patches, scattered in every nook and corner throughout the State. Large colonies cannot, therefore, expect to accommodate themselves in any one location on good arable lands, cleared and ready for the plow.

Comparatively, this is a new State; but it has been occupied long enough for settlements to spread over the most of the territory, and leave few isolated spots or tracts of land for large colonies—numbers requiring more than 5,000 acres in a body. We think it would be somewhat difficult to find 5,000

acres in a body composed of land of an arable nature, and within the reach of people of only moderate means. If the members of a colony can make a purchase of some land that is to be deeded in the transfer, and sold for an average of \$12 to \$15 per acre, and most of which is in cultivation, Oregon can locate a good many 200 or 300 membership colonies, and perhaps at a good deal less cost than could be done in other States. If a colony is prepared to buy about one-half of the amount of needed lands of private parties, get some of the balance from the State or the Railway Company, and take the balance from the Government, several thousand acres in a body thus made, could be had in different portions of the State. Where people go as individuals, or in groups of ten or even twenty families, and prepared to make part purchase, there need be no difficulty in finding settlement in Oregon. Under any other conditions than these, the location of large colonies in Oregon is not a matter of easy attainment; indeed, it is not a probable matter at all.*

The United States land laws apply here as elsewhere. Under the homestead law, every head of a family, male or female, or single man over twenty-one years, a citizen of the United States, or having declared his intention to become such, can enter, on payment of the registry fees, ranging from \$7 to \$22, eighty acres of any of the land reserved by the Government within the limits of the railroad grants, excepting land bearing gold, silver, cinnabar, or copper; and 160 acres if the claim is situated outside of the latter. After five years' *bona fide* residence upon and improvement of the land, the Government will give the claimant a clear title.

Under the pre-emption laws, persons possessing the same qualifications as claimants under the homestead law, not being in possession of 320 acres in any of the States or Territories of the United States, may enter at a land office, on payment of a fee of \$2, and establish a pre-emption right; that is, a right to purchase a tract of 160 acres, either within or without the limits of a railroad grant, at \$2.50 per acre in the former, and at \$1.25 in the latter case. Where the grant was offered for sale by the Government, the land must be paid for within thirteen months from the date of settlement, otherwise within thirty-three months.

Under the timber-culture law, a quarter section, 160 acres, is allowed the qualified man or woman, resident or non-resident, who pays \$14 fees, and thereafter breaks or plows five acres the first year, cultivates it the second year, and plants to forest trees, cuttings or seeds the third year; and, beginning the second year, breaks another five acres, and cultivates and plants the third and fourth years. When he gets his ten acres—the lawful area—planted, he keeps the trees cultivated and in good growing condition for four years more, or eight years from date of entry. If at that time he can show 6,750 healthy trees, he will be granted title on paying \$4 land-office fees.

Under the desert land law, which applies to large tracts in Eastern Oregon, any citizen qualified as above can enter 640 acres of land which will not produce without being irrigated, by paying 25 cents per acre at time of entry, and within three years making proof that such legal subdivi-

vision had been reclaimed by conducting water thereon, and paying an additional \$1 per acre,—these being the requirements to secure title.

Some fine tracts of railway land along the line of the Oregon & California road, in the Willamette Valley, and in Southern Oregon, may be had. In Eastern Oregon these lands are chiefly in the hands of the Northern Pacific Railroad Company, and the Oregon Railway & Navigation Company. These lands are sold on ten years' time, at from \$2.50 to \$10 per acre, or at 10 per cent less for cash.

The State Government has also for sale a considerable quantity of desirable land, granted to it by the United States. Prices are about the same as for railroad lands. The State Land Office is at Portland.

There are five Government Land Offices in Oregon located at Oregon City, Clackamas County; Roseburg, Douglas County; Lakeview, Lake County; The Dalles, Wasco County; La Grande, Union County.

The immigrant possessed of some means will always do better in Oregon, as everywhere else, by investing them in purchasing lands already under cultivation, than by purchasing wild lands, provided he is careful not to pay too high a price, and to obtain a good title; for he will thus make his labor at once productive, and avoid the hardship and loss of time incident to a new settlement. The greater number of immigrants, however, cannot be expected to be in a position to take the more advantageous course, but will have to avail themselves of the openings for settlement on Government and railway lands. To them the fact is of consequence, that the mild climate greatly lessens the discomforts of the first years of the life of new settlers, and that the legitimate rewards of the husbandman's patient toil are nowhere more certain to be reaped than in Oregon.

New-comers often find it to their advantage to rent well-improved farms for a year or two. This practice enables them to become familiar with the country before settling permanently, and protects them from the mistakes incidental to hasty locations. The usual rates of rent are one-half of the crop to the owner, if he furnishes, besides the farm, the seeds and implements.

Finally, after the public domain in this State has been exhausted (and it will not be long to that date), the land in Oregon will very quickly go up to an average, probably three times as high as the present one. The man who owns 160 acres of Oregon land has a fortune for his children. Nearly 60,000 people settled in Oregon in 1888; the immigration for 1889 was over 65,000, and 68,000 in 1890. It is estimated that 150,000 settled in Oregon in 1891. The second Oregon is coming on. The present State and people are rich. The average farm entered twenty years ago at \$1.25 per acre, is worth \$30 an acre to-day. This makes an appreciation of many millions. The second Oregon will reap still more because of the land limits. In ten years, the \$1.25 to \$30 will be \$30 to \$70 and \$75. It is wisdom to invest now, if you intend to invest at all. Go there with a will to work, and your industry and careful efforts will reward you. For almost any sum of money between \$5 and \$50 an acre, a man can get from one to a hundred acres of land convenient to town, transportation, schools, churches, and other advantages of this nature,—land that will produce all the grain, fruits, and vegetables of the

temperate zone of America. He can find the same in a climate where nectarines, figs, almonds, and the best of all kinds of fruit and corn, as well as wheat, find a natural home. He can be suited as to climate, soil, prices, productions; in a word, if he is at all reasonable, he cannot go amiss of his object in Oregon.

OREGON TIMBER.

Twenty-five thousand square miles, or 16,000,000 acres, of the mountain and coast lands of Oregon are covered by a growth of timber such as, in diversity and size, no other like space on the earth's surface can boast of. You can pick your way for miles through these forests, where the ground could not give room for the cordwood of trees felled and worked up. If "inexhaustible" were not a term unknown to the lexicon of this age, we should apply it to the timber supply of the Columbia River. The quantity of timber, near and remote, available for lumber, is simply prodigious. These 16,000,000 acres of forest will yield 50,000 to 200,000 feet per acre. There are billions upon billions of feet equal to the best product of any other country, ready whenever it may be wanted. Certainly, so far as the present generation is concerned, the supply is inexhaustible, assuring the continuance of a great industry, which must soon grow to larger dimensions. The annual output of logs, now about 200,000,000 feet, might be ten times multiplied next year, and the production maintained on that basis for an indefinite period.

The varieties of chief economic value are Douglas or Oregon pine, yellow fir, black spruce, hemlock, white pine, Oregon cedar, arbor vitæ, yellow cypress, oak, broad-leaved maple, dogwood, arbutus, aspen, and cottonwood. The Douglas pine, or red fir, attains a height of 200 to 300 feet, is straight as an arrow, and is the red hickory of America. It is sent across two oceans to the shipyards of Europe, because, as the French experts at Toulon dockyards reported, after the severest test known, "The masts and spars are woods rare and exceptional for dimensions and superior qualities, strength, lightness, and absence from knots and other grave vices; they may be bent and twisted several times in contrary directions without breaking." Lloyds, the English builders, report of it: "We have tested all the woods in the world, and find the red fir best." A stick of this wood, an inch square, resisted 2,000 pounds, while other woods broke at 1,500 and 1,600 pounds pressure, making a square break, while, finally, when the red fir did part, it broke in a long rent. The red fir often measures 200 to 250 feet in height, with trunks nine feet in diameter, clear of branches up for 150 feet. Out of such trees eighteen rail cuts have been made, and 5,000 to 10,000 feet of lumber. Elder stocks from eighteen to thirty inches in circumference, hazel bushes from one to five inches in diameter, are of common occurrence. Lumber is cut from alder logs measuring twenty to thirty inches in diameter. In the forest south of the Umpqua, the yellow pine is found, as also an abundance of white or sugar pine, the wood of which is in great demand. For commercial and industrial purposes, the red cedar, red fir, hemlock, sugar pine, maple, and ash are the most valuable. Black walnut and hickory have been introduced and cultivated with success.

The completion of the Union Pacific's Oregon Short Line branch to Portland has opened up a lumber market as far east as Chicago, whose demands it is impossible, with present facilities, to fill. Regular shipments over the Union Pacific began in August, 1885, and continued during the remaining months of the year at an average rate of about 1,000,000 feet per month. In 1886, the shipments averaged 2,000,000 feet per month; and for 1887 and 1888 the shipments were close upon 4,000,000 feet per month. One mill in Portland saws exclusively for the eastern trade, another sends about one-half its product east, and several others make occasional shipments. The income from this source alone during the past year has been upward of \$500,000. The demand has grown steadily month by month. This rapid development is not the result of a "boom" effort, but has been in response to legitimate demands.

The market is everywhere—Denver, Salt Lake City, Omaha, and on as far east as Chicago. Railroads east of the Mississippi River have begun to use Oregon lumber,* and it is coming to be known in the building trades. For farming and other work requiring strength, it is without equal in the light lumbers of the east. The greater number of eastern orders are for heavy timbers, and it goes for the most part in this form. Train loads now go east over the Union Pacific Railway almost daily. The lumber consumption of the Union Pacific Railway alone is very great, sufficient to employ several mills, while that of the country into which it must introduce and carry the product is beyond estimate. Already this eastern demand has put new life into lumber manufacture, and into general industry on the Columbia River. There is not an idle mill, and the capacity of several of the old establishments has been increased. In one Portland mill, which works exclusively upon eastern orders, the saws are in motion night and day. Persons not familiar with the lower Columbia country, its business and industries, cannot appreciate the importance of this activity to a large body of the population. The lumber industry is the wheel which sets other wheels in motion. The money paid for logs goes through the hands of the logger, to the owner of the timber, the workmen in the camps, the boatmen in the river, the breeders of oxen, the producers of feed and provisions,—in short, its benefits reach every interest in the river community.

It should not be understood that this new eastern lumber trade is all, or even a large share of Oregon's lumber business. It is dealt upon in detail only because it is new. On the Lower Columbia River there are six or seven large merchant mills, which saw exclusively for the California and foreign trade, the product aggregating from 75,000,000 feet to 100,000,000 feet per year. At the mouth of the Umpqua River there are two large mills, which saw for the export trade, and there are five or six mills of the same kind in Coos Bay. Much of this lumber finds its way to Australia, China, Japan, and South America. Besides these merchant mills, there are several mills in every county which saw exclusively for the domestic market.

As to the grand openings in Oregon for additional capital and enterprise in this industry, we quote the following from an issue of the *Portland Oregonian*:—

"The lumber business in Oregon is capable of indefinite expansion. The timber supply, as stated above, is practically unlimited, and the market is the world. There is no danger of overdoing the business. Every mill added is an aid toward the erection of a grand lumber mart, which Oregon is destined to be. The establishment of fifty mills would be in the nature of coöperation with the mills now in existence. The future of this business is assured, not less by the merits of our lumber and the favor with which it has been received, than by the decline in the eastern supply. The pine lands of the Northern States are not yet exhausted, but a point has been reached from where the end is seen. The supply is visibly 'short.' It is this that has advanced prices to a figure which enables our lumbermen to compete. There is no other source available, and the demand must continue to grow."

From the above facts the conclusion will readily be reached that good building material is among the cheap things in Oregon. Fair, rough lumber for building purposes can be had all along the coast, rivers, and railway lines for from \$6.50 to \$10 per thousand; dressed lumber, from \$15 to \$25 per thousand. In the eastern portion of the State, where the transportation is more expensive on account of the longer hauling, the price is, of course, a trifle in advance of this; but in all parts of the State, building is inexpensive as compared with the prices east of the Rocky Mountains. Saw-mills are a feature of almost every locality, certainly of every distinct neighborhood and town.

THE PRECIOUS METALS.

Oregon has never been regarded as a mining region, and we have said but little of its promising gold and silver districts, because of the overshadowing importance of its agricultural and forest resources. But Oregon contains some rich old mineral fields, which have sent out millions in gold and silver; and in many districts new developments are being made, which promise to soon put the State among the foremost of those in the list of bullion producers. In Eastern Oregon, along the Oregon Short Line, are dozens of extensive districts, promising very well, but of which little can be said, because of their slight development. The mineral belt along the Blue Mountain Range in Eastern Oregon, of which Baker City is the center, is about 100 hundred miles long from east to west, and varies in width from twenty to thirty-five miles, and embraces both placer and quartz mines. The Virtue Mine, near Baker City, has yielded \$2,000,000, some of its quartz running \$10,000 to the ton. The famous Connor Creek gold mine is forty-five miles from Baker City. Within a radius of forty miles from the same place are the Rye Valley, Monument, and Cable Lode Silver Mines, all rich fissure veins, and surrounded by others. The gulches of Baker county yield nearly \$500,000 per year, and have maintained that yield for some twenty years. There is a vast area of rich placer ground there worthy of the attention of capital.

In Jackson, Coos, Curry, and Josephine counties, in Southwestern Oregon, is an extensive mineral belt, which has been a good producer of gold ever since 1851, and yet its merits are only now being thoroughly

appreciated, since the extension of railways into that portion of the State, which has added much needed facilities for economical working of the mines.

The above and other districts have been so thoroughly and freshly treated by that Oregon authority on mines, Prof. Herbert Lang, in the *Portland Oregonian*, of January 2, 1888, that we feel justified in reproducing his report, which follows, almost in full:—

“The past year has been memorable in the records of mining in the Northwest, not only for the discoveries which have been chronicled, but more particularly for its remarkable confirmation in many instances of the hopes and expectations which were engendered by the discoveries of the previous year. It is true that during 1887 no great and promising mining region was first made known, but it is distinguished beyond all other years as a season of development and proving of mines. In no other year, nor indeed in any two years, has so much development work been carried on, particularly in the northern districts. Mining has now taken on the aspect of a business to be followed as other businesses are; and, as we shall point out, the art is beginning to be regarded as something to be first learned, and then practiced in the light of increased knowledge and skill. The time has been, in Portland, when such knowledge and skill were not regarded as essential in this pursuit; but with the experience gathered, from Alaska to the California line, and from Idaho to Tillamock county, this belief in the ability of anybody and everybody to conduct mining operations profitably is being slowly given up. The experience gained in the Monumental, Lucky Queen, Bonanza, and such ‘mines’ has been of value in instructing our mining investors—who are very shrewd men as a rule—‘how to do it,’ and enabling them to carry on the successful working of such real mines as the Tyler, the Sierra Nevada, the Keystone, and the Swinden with common sense, and even with skill. There has been a most decided improvement within the last year, manifesting itself not more in the number and quality of the mines possessed, than in the mode of working them. The production of the precious metals in the State, during 1887, is reckoned by the reviewer to be \$570,000. There is every prospect, however, that during the present year, should no unforeseen accidents occur, this aggregate will be doubled. As the reader proceeds with the account, he will find that the quartz-milling capacity of the State is enormously increased by the building of the Keystone, Whitman, and Bradley mills, whose output this year is likely to reach several hundred thousand dollars. Besides, it is probable that the Eureka-Excelsior, the Swinden, and other companies will construct mills this year, in which case the aggregate product of the State may well be doubled.

“SOUTHERN OREGON.—No preceding year has seen so many active and skillful prospectors in the hills of Southern Oregon as this. In the way of quartz prospecting, a great deal of labor has been performed, while the results have not been too encouraging. The quality of the gold-bearing quartz on which this year’s locations were made, is very poor, numerous assays of hand samples and 100-pound test-lots, rarely showing a possible working profit. The persistence of the prospectors is not unlikely, how-

ever, to yield important fruit in the future. A large portion of this beautiful and diversified region still remains unexplored, and with geological formations all in their favor, they should be able ultimately to strike pay rock. Now that the rage for great bodies of low-grade, free-milling gold quartz is on, it may be of service to the general prospector to learn that extensive veins of this description exist in Southern Oregon, especially on the Lower Rogue River, about Galice Creek, which, as they are not all held as yet, may be worth locating upon and examining.

"The principal mining work carried on this year in Jackson county was in the development of the Hope and Pilgrim ledges, on Wagner Creek, and the noted Swinden mine, near Gold Hill. A force of fifteen men, in the interests of a firm of Chicago people, are engaged in working the Hope claim. A small quartz mill was running on ore for a part of the year, and said to be paying from \$8 to \$12 per ton, but the results have not been made public. The ownership of the Swinden mine changed during the autumn, the old fellow who gave name to the property having been got rid of, and the mine and mill coming under one ownership. The company who now own and control this property have an extensive mine containing an apparently unlimited amount of quartz, easily extracted and easily milled by the ordinary free-gold process, and a ten-stamp mill driven by steam. Their opportunities for making money are very good. They might, and certainly ought to, build a large stamp mill of the best design, to contain not less than thirty stamps, located on the Rogue River, only two miles away, to which, by means of an aerial wire tramway, or a light railway, their ores could be transported and milled as cheaply as quartz can be milled in any locality in the world.

"As to the Swinden mine, nobody who knows it will deny that it has stood the process of development better than any other property in the region. It is one of the most extraordinary ore deposits in Oregon. It is developed by open cuts of moderate depth, and shows a body of loose friable quartz mixed with clay, which assays from \$2.50 to \$20, and is probably fifty feet wide. The average assay value is not known, but the whole mass is said to mill \$4 to \$5. The same company owns the Knott, a neighboring claim, whose development has been pushed during the year, with reported good results. The vigor and energy shown by this company are commendable, and it is a pleasure to say that they are beyond the realms of uncertainty and are treading on sure ground. Their future work will doubtless prove very profitable.

"No reports of extraordinary yields come from the placer mines of Applegate and the rest of Jackson county; but the yield is supposed to have been good, considering the disadvantages concerning water under which the miners labor. There are vast stretches of very good placer ground, which, but for lack of water, could be regularly and profitably worked. Especially is this true of the upper Applegate region, where the gravels are very thick, but they lie frequently upon the brows of lofty hills, where water cannot be brought without a very great outlay. Even on the apex of the divide between Jacksonville and the Applegate there are very good dry places, which

still produce a little when the dirt is carried to water, and would be profitable if it were possible to work them thoroughly.

"Jackson county possesses two quartz mills,—that of the Gold Hill Company, near Gold Hill Station, of ten stamps, steam, daily capacity twenty-five tons; and the little five-stamp steam battery which was formerly a part of Mr. Chick's reduction works at Medford, but now does duty upon the Pilgrim ledge. Its capacity is probably five tons daily. As to other apparatus, the arrastre at the Rotan ledge, and Messrs. Koehler & Brandt's Huntington mills, on Wagner Creek, complete the category.

"It is well to set the year's production of gold from Jackson county's mines at \$60,000, of which from \$5,000 to \$10,000 was derived from the quartz. The remainder is placer gold. It will be noticed that the estimate is appreciably lower than those furnished by the newspapers.

"A great many strangers have entered upon mining in Josephine county since the construction of the Oregon & California Railway, and more will follow. This county possesses a large scope of country, which if not mineral is nothing at all. The new mines opened, or old ones reopened, are: the Coyle ledge, on Coyote Creek, a very fine-looking quartz vein, which it is hoped will prove a mine; the Raging, or Roaring Bill, the Brown & Brazee placer claim on Grave Creek, bought by Mr. Hughes 'when the snow was on the ground' for \$25,000; and the Stanley claim, near Woodville, which yields some very good \$12 quartz. There were besides a great number of new discoveries, like that of the Woodcock mine, near Kirbyville, which made much noise, but the assays generally ran too low.

"The whole of Southern Oregon, as regards mining, is a country of magnificent prospects. Nearly every new arrival, finding at first such rich prospects, jumps at once to the conclusion that vast riches await him, and consequently the country has been badly underrated; for eventually, after a suitable and discriminating study of the potentialities of the region, he concludes that the pay rock as a rule doesn't 'go down.' But it does not necessarily follow that there are no mines to be found, for there are just enough instances of good mines to keep alive the name of Southern Oregon as a quartz-mining region. Like charity, which is said to cover a multitude of sins, the Swinden claim, for example, will offset a vast number of failures in minds which were no mines.

"The Galice Creek placer mines have attracted more attention of late than at any previous time since the celebrated craze about the Big Yank ledge. Some fifty miners, of whom half are Chinese, work on the Creek while two hydraulic mines, the Blue Gravel and the English companies (now Cameron & Ennis), employ perhaps twenty more, using two giants, each. The quantity of pay gravel in the region is very large, but the water available in the comparatively short ditches—of which few in Southern Oregon exceed five miles, is quite limited, while the depth of gravel exceeds 100 feet in certain tracts.

"The limited mining interests of Douglas county have not enlarged during the year. The Oregon nickel mine, near Riddle, under the able charge of Mr. Brown, has made some progress, but the great question of the proper treatment of the ores, which, as is well known, consists of the double sili-

cate of nickel and magnesia (this mine forming one of the only two workable deposits of oxidized nickel ore known in the world), still remains the stumbling-block that it has been for years. The ordinary process of fusion has been canvassed fully by the proprietors of this great mine, and the writer of this article has had the honor to recommend a solving or leaching process as being more liable to produce a pure metal.

"The Green Mountain mine, on Starve-Out Creek, a tributary of Cow Creek, of which so much was said, has not made progress this year. No plans for development have been carried out; the work carried on consisting in drifting for 'pockets.' Some slight dissensions among stockholders are said to have caused the trouble, and as this may soon be rectified, it is reasonable to expect that this mine, which is a very extensive and promising deposit indeed, will again begin work, this time in a sensible and business-like way. The ores, which carry lime to some extent, and were supposed to contain a fair average of gold, might be smelted with copper sulphide ores, of which there are large quantities within an accessible distance, to a matte which would contain the gold and might be shipped away for separation. Copper is at such a price that that metal alone would pay the entire expense of treating the Green Mountain ore.

"Developments to a considerable extent have been made on a ledge on the headwaters of Sucker Creek, an affluent of the south fork of the Coquille River at the southeastern extremity of Coos county, where the common angle of Josephine and Douglas counties ensues. The claim is being prospected, it is said, with encouraging results. On Sixes River, in Curry county, a promising placer claim has made a very fair output, it is said. The black sand mines along the coast have kept up their yield in several cases, but the interest of their working chiefly centers about the new processes for working the sands, a number of new inventions having been tried this year. It is not impossible, and, indeed, it seems from a casual thought, very probable, that the burlap machines, which are used so successfully in saving the fine gold of the Snake River Plains, which is notoriously difficult to save, might be used with the greatest advantage in the coast beach sands. The machines cost little to set up or run, are durable, and where there is plenty of water, do their work finely, and give the best of satisfaction. In fact, they are indispensable in working the Snake River sands, and are well worth an exhaustive trial by the coast miners.

"WESTERN OREGON.—More prospecting has been done in the past year in the Santiam country than ever before. A number of locations were made, the most of them in the neighborhood of the White Bull mine, southeast of Mehama. The veins in this region are very large and extensive, and carry gold, usually in connection with sulphides of lead, iron, copper, and zinc. The White Bull Company has proceeded with the development of their mine, which is held by patent, and for that purpose have run a new tunnel at a point considerably lower than the previous workings. The Canal Fork Company, near by, have in the lowest workings, found the vein narrowed down to a comparatively thin sheet of soft, friable quartz of slight value. It is a great pity that these companies do not set about to

ascertain the working value of the vast bodies of low-grade quartz which lie fully exposed in the top of their mines, rather than seek for imaginary deposits at lower levels. It may be that the Canal Fork, whose quartz body in the upper workings is forty to fifty feet wide, may prove, not a second Homestake or Father DeSmet, but a very well paying and cheaply worked gold mine. The same may said of the White Bull. These mines both contained small amounts of very rich quartz upon the surface, but instead of being benefited, both appear to have been injured by the occurrence; subsequent workings being largely directed to finding other rich deposits of the same sort, instead of proceeding to legitimate and thorough developments. There is still plenty of time, however, to develop mines in the Santiam country.

"Much interest was occasioned by reporting discoveries along the line of the Oregon Pacific Railroad, about Brightenbush Creek, a tributary of the North Santiam. Nothing can be said at present regarding their extent. In the vicinity of the summit of the pass of the Cascades, over which the railroad grade is now extending, gold-bearing gravel is found, and claims have been taken thereon this year.

"The Blue River district received last year a decided accession to its mining population. Several locations, some very promising, were made this year, and some of those previously located have been worked considerably, especially the Eureka claim, owned by Frank Mason and others, of Portland, who are prospecting their mine with a view of putting up a mill to work the ore. For milling on a large scale, there are few better localities than Blue River, because water-power, timber, and quartz abound, and the climate is unsurpassed. The claims in this vicinity are mainly controlled by Eugene parties, among whom are several of the most reputable citizens of that place.

"EASTERN OREGON.—The experience of quartz miners during 1887, in Grant, Union, and Baker counties, has been, on the whole, very favorable, perhaps more favorable than ever before. There have been two or more pronounced failures—failures, too, where the mines were wholly in fault. But, on the other hand, there have been several successes, to more than balance the account. There has been improvement as much in the modes of working as in the value of the quartz found, and, to all appearance, there has been a general getting down to business. Especially is this true of Pine Creek.

"The Keystone mine has been well opened, under the intelligent direction of Frank Watson. His first care was to prospect the mine thoroughly, so as to avoid great mistakes in the erection of costly machinery. Next, he proceeded to make a number of long and thoroughly-conducted mill-runs in a little old five-stamp mill belonging to the mine. These mill-runs, continued through the year, have produced about \$6,000, being at the rate of about \$20 per ton. Having done this much, and being well assured of the value and peculiarities of Keystone ores, and knowing by means of the explorations which were carried on contemporaneously, the extent of the ore deposit, Mr. Watson had no further hesitation in building a very complete ten-stamp quartz mill, which is now ready for continued operation. Here is

an example which ought to be generally followed. It consists in the application of common sense to the problems of mining, and is one of the best examples to which we can now point. Next year the Keystone will probably repay the money that has been expended in purchasing and developing the property, and take its place in the list of dividend payers.

"The Eureka-Excelsior claim at Cracker Creek, lately purchased by Jonathan Bourne, Jr., and two associates, is thought by those who are in position to know, to be one of the most promising mines owned in Oregon. The character of the ore and its quantity are said to be remarkably favorable. The lode or vein is no less than forty feet in width, with a rich streak down the center, four feet in width, along the adit, which assays extremely high, returns reaching \$300 and over, while what is called second-class ore goes \$50 and \$100. The average of the ore in the breast of both tunnels is \$100 per ton. The outside vein matter carries \$25 per ton. The ore contains sulphureted minerals in a gangue of quartz, and is properly a concentrating ore, although much of it is rich enough to ship directly to the smelter. A forty-stamp mill is projected, and will probably be put up in the ensuing season. Cracker Creek, which intersects the ledge, affording excellent working facilities, is a stream flowing 250 miner's inches, with ample water-power for milling purposes, air compression, etc., and drains into Granite Creek, an important tributary of the John Day River. The important point to outsiders is, that if this property begins outputting next year, it is likely to double the total gold product of Eastern Oregon.

"Of developments at Rock Creek, Silver Creek, and other newly-discovered regions of the Blue Mountains, the most encouraging reports are received. The work done thus far in both these localities has been very satisfactory, and it is very likely more extensive operations may be in store for the next year. The Chloride mine has begun shipping ore. The Tabor & Tracy mine, in Granite district, is reported to be 'in bonanza,' and the mill has been enlarged from five stamps to ten. The Bradley mine, at Sanger, Union county, has been crushing from fourteen to twenty tons per day, with much more rock in sight. Theirs is a ten-stamp pan mill, and the rock is said to average \$45 per ton. The property belongs to the C. F. Bradley Mining Company, who have spent \$100,000 in the claim, etc. A mill is proposed also for the Golden Monarch mine, in Granite district. The Worley mine, in the same neighborhood, owned by Wolfe and others of Baker City, it is said to have been sold lately. It contains some exceedingly rich ore, some of which has been crushed at the Bonanza mill.

"The heaviest monetary transaction of the year was the sale of the Nelson placer mine, Baker county, to some California capitalists, who are said to have paid \$150,000 for the property, while another report says \$300,000. They have bonded the Auburn water ditch, thirty-four miles long, for \$35,000, and will begin operations with fifty men very shortly.

"PINE CREEK.—Among the most important mining operations now proceeding in Oregon, are those in connection with certain of the Pine Creek mines, owned or controlled by the Oregon Gold Mining Company, of Louisville, Kentucky. The affairs of this organization, are, as is well known, administered in this State by Professor Luce, under whose direction the

Whitman mine, and several other claims, near Cornucopia, have been opened. The company's expenditures for two years past on these properties are said to aggregate \$200,000, including the cost of the very complete and perfect 20-stamp mill, which began operations over a month since. It is said that it is worth a visit to Pine Creek to see the Professor's work on mill and mine, and we do not doubt it. The Louisville company bought the Whitman at an early date, soon after the discovery of the Pine Creek mines, and set to work intelligently to explore the claim. An incline, some 130 feet long, showed rich ore in a part of its depth, but the vein was found to be faulted at that depth by one of the huge basic igneous dykes which abound in that region. There had been nearly \$30,000 expended in development up to that time, and the Professor, with more nerve than ever was displayed in a mining operation in Oregon before or since, set to work to cut through this obstruction, and find the vein on the other side, and in due time the workings passed the dyke, and recovered the vein almost exactly where the Professor expected to find it. Having satisfied himself about the quality and quantity of the ore bodies in the Whitman group, the Professor proceeded to lease certain neighboring properties of value, the large quartz mill which was nearly a year in building, having about reached completion, and ore being desired to keep it running. This mill, the largest in Oregon, with the exception of that at Connor Creek, is also the completest in detail. Its cost, including the prime cost of machinery, the cost of transportation, the expense of grading the site, and building the mill, is reported to have been \$40,000—a fair fortune in itself, and a sum greater than the cost of some very good mines. It is now running with great success, saving the values to a high percentage, and its work, more than anything previously done at Pine Creek, is elevating public confidence in the mines in that section.

“Dr. Howard's experiment at Mr. Breck's metallurgical works, in treating the quartz from his claim, resulted very favorably, the result, taken with Professor Luce's experience, fully justifying the assertion which the reviewer made last year, that the proper treatment of the Pine Creek sulphureted gold quartz was simply wet stamping in ordinary gold mills, provided with quicksilvered plates to catch the free gold, and concentrators to take up the sulphurets. Regarding Dr. Howard's work, it is said that the treatment of 1,600 pounds of quartz, assaying \$70 per ton, and containing sulphurets to a large extent, was so successful in saving the values that the tailings contained but \$1.20 per ton. The novelty in the treatment consisted in employing a newly invented concentrator, whose details are not at hand.

“Some work has been done in the various claims of Pine Creek, since the last mining review was written, but space prevents mention of the numerous developments made.

“The extension of the mineral fields in Wallowa county, in the extreme northeastern part of the State was not surprising when one considers the nearness of the Pine Creek mines, which lie, it is said, not only in the same neighborhood, but in the same belt of rocks. The prevailing mining fever spread quite naturally among the substantial citizens of the Wallowa sec-

tion, and a genuine mining excitement sprang into existence there. Perhaps there is good reason for it; at any rate the people of that section have told us much from which a tangible and moderate view could be formed of these mines, and they have also sent down some very rich specimens of blue ore, 'bromides' they persist in calling them (although bromides are really never blue), from which one may form an impression of great riches—in copper, at least. The accessibility of the region favors its development very much, and, in a general way, circumstances there are said to be very favorable to mining on a large, and at the same time cheap, scale. The district is easily accessible, and a large number of claims and tunnel rights have been located, which are being actively worked by the people of the vicinity, who have entered upon mining with zest."

USEFUL MINERALS, ETC.

Alternating with the precious metals, are valuable coal, iron, copper, lead, manganese, nickel, and other mineral deposits, which will soon be utilized in smelting works, forges and rolling mills, to make radiant the night, and furnish the iron bands that shall join the producers of the valleys with the armies of consumers in the mountains. Bituminous coal, iron, and copper abound in nearly every county in Oregon, while the other minerals and metals thus found are the following: Salt, graphite, nickel, potter's clay, platinum, pumice, quicksilver, gypsum, slate, gneiss, and esite, barytes, steatite, brick clays, manganese, quartz, zinc, mineral waters, marble, sandstone, syenite, cement, lead, fire clays, chrome, ochre, iridium, infusorial earth, nitre, limestone, granite, basalt.

Of Oregon's imposing list, the following are mined or otherwise utilized: Gold, silver, iron, platinum, iridium, nickel, quicksilver, coal, brick clay, potter's clay, mineral waters, granite, marble, limestone, sandstone, basalt, esite, and cement.

COAL.—At Wilhoit Springs, Clackamas county, is a large deposit of lignite, in a horizontal bed, seven feet thick, and of promising appearance, slightly prospected. In Nehalem Valley, and other parts of Clatsop county, is coal in thick strata, apparently very valuable, with works in contemplation. At the Falls of Beaver Creek, near St. Helen's, and elsewhere in Columbia county, are large deposits, but not worked. In Coos county is a very extensive strata near the bay, worked for many years, and still producing largely. The supply is deemed practically inexhaustible and beds are said to underlie 500 square miles, and contain a fair quality of coal. Thousands of tons are mined and shipped from this region monthly. Over \$2,000,000 have been invested here in a "plant" for working on a large scale. Coal is also found on the south fork of the Coquille, in important strata, in conglomerate, unworked, but judged to be very valuable. Coal also generally occurs throughout the Coast Range from the Columbia to Rogue River, as in Benton county, where it crops out near the Oregon Pacific Railway. The strata is often much contorted and broken, rendering mining difficult and expensive. The coal being of a comparatively recent age, probably later cretaceous or early eocene, and partaking of the common

lignitic character, it is not usually classed as high grade. In fact, the most of it is poor. On the John Day and its tributaries much coal is found, which it is proposed to mine.

IRON.—Large deposits of rich, bog, hematite, and magnetic iron ore exist in nearly every part of the State. The most important of these is situated in Oswego, on the Willamette, about six miles south of Portland. The ore from it yields about 54 per cent of pure iron. Other extensive deposits exist in the counties of Columbia, Tillamook, Marion, Clackamas, Jackson, and Coos. A large bed of ore has been found at St. Helen's, on the Columbia. The deposits near Portland have been worked for twenty years or more, in a small way, supplying a single small stack, making a very good quality of charcoal pig, salable to local foundrymen, and in San Francisco. These will be worked more extensively in the future. In the range of volcanic hills bordering the west bank of the Willamette, from St. Helen's to near Oswego, are deposits constituting a belt of iron ore extending from Kalama, on the south bank of the Columbia and the west bank of the Willamette to a point near Oregon City, and thence southwestward to the foothills of the Cascades. These ores are exceptionally pure, the quantity is great, and all the essentials for making first-rate iron are at hand.

There are also deposits of magnetic iron ore, in Coos, Curry and Douglas counties, in grains comprising a greater part of the auriferous black sands of the sea-shore, and also in nodular masses in serpentine. In Jackson county is an iron mine mined as flux, for lead smelting,—a valuable deposit; productions in 1887, 100 tons; value at mine, \$3,000.

COPPER.—Josephine county contains the largest deposits of workable copper ores in Oregon, and perhaps in the entire Northwest. They have never been worked to any extent, with the exception of the Queen of Bronze mine, near the Waldo, from which a small quantity of ore has been extracted. There was at one time a considerable interest manifested in these mines, but their isolation forbade successful working. As present, however, with a railroad passing within forty miles, and the price of copper standing at 17 cents, it would seem that the Josephine mines ought to be profitably worked, and more especially as the ores are very rich. There is plenty of wood for fuel, and a delightful climate, allowing work throughout the year. Some very fine ores, principally copper pyrites, said to carry gold and silver, have been lately brought from the vicinity of Table Rock, Clackamas county, and exhibited in Portland, with the assurance that there is an abundance of similar ore on the Clackamas and Molalla. It is not unlikely that the region named may become an important producer of copper. There are other less important deposits in other portions of the State.

LEAD.—Lead is abundant in Wallowa county, and is found in less quantities in Clackamas, Linn, Josephine, Douglas, and other counties.

MANGANESE.—There is a single locality—in Columbia county—from which manganese is exported in large quantities. It was discovered by men who mistook it for something far more precious, and whose hopes were dashed on learning that in the commercial way, manganese oxide, the form

in which it seeks a market, is worth from \$10 to \$15 per ton. Many important industries depend upon the manufacture of manganese. For instance, the manufacture of bleaching powders, the generation of chlorine in that important and growing art—the extraction of gold from its ores by chlorination—the production of steel by the Bessemer process, wherein *spiegel-eisen*, a compound of iron and manganese, is used. As none of these arts are practiced in this State, it is not to be expected that, except as a matter of export, manganese will soon be mined here. We must make the observation equally in regard to this substance, as with too many others, which have not come into use in Oregon, that, as there is no inquiry for them, no one has taken the trouble to make discoveries of deposits of their ores. If an active demand were to arise for even so cheap a substance as the black oxide of manganese, it is likely that not one or two but fifty or a hundred new localities would very soon be reported.

NICKEL ORE.—In the Oregon Nickel mine, at Riddle, Douglas county, the State possesses one of the two great known deposits of oxydized nickel ore. In a commercial point of view, this is the most important mine in the State, possibly excepting the Oswego iron mine, since the operation and metallurgic treatment of its ores, a comparatively complex and costly matter, will afford employment to a great many persons. Preparations have been made for active work, and it is thought that this year will see its inauguration upon a larger scale.

PLATINUM AND IRIDIUM.—These two metals are being mined from placers and ocean beaches, as an incidental product, along with gold. Their production depends entirely upon the mining of the metal. There is no way of arriving at the yearly output, but it is quite small, not above \$5,000. These two metals have not yet been found in veins or other deposits in place, although so reported from time to time.

CINNIBAR.—Fourteen miles northeast of Oakland, Douglas county, are extensive deposits of great value, which are now being worked. Also in Jackson county, deposits of considerable value have been found.

MARBLE, GRANITE, ETC.—In various and easily accessible portions of the State superior marble and building stone are found in ample beds for all demands. Light-colored limestone and olive brown sandstone are plenty. Good glass sand and gypsum are found at several points in the State, also granite. There are likewise large deposits of kaolin, pottery clays, cement, mica, and limestone. These latter are being utilized on a mammoth scale, and cement works are about to be established.

It will be seen that there is an infinite variety of industries within the reach of Oregon, in connection with the utilization of its immense wealth in useful metals, minerals, etc. The field for enterprise of this character is a broad and inviting one.

MANUFACTURING.

From preceding pages it has been learned that two essential elements of profitable manufacturing—cheapness and an abundance of raw material and fuel—exist in a marked degree in Oregon. But another of equal, if

not greater, importance also exists in the State, viz., abundant water-power. No part of the Union is better supplied with natural power than Oregon. The falls at Oregon City, on the Willamette River, alone could supply sufficient power for the entire industry of a community with a larger population than that of the whole State, it being equal to over a million horse-power, and capable of great extension with but little expense. The entire volume of the river here falls over a ledge of rocks forty feet high, and the surroundings are particularly suited to an easy utilization of this vast power.

The water-power of Salem ranks next to that of Oregon City. It is obtained by means of a canal leading the waters of the Santiam River into the bed of another small stream. A mile east of the town the channel of the latter is divided by races, and approaches the place by two lines. On each line there are three falls of from fifteen to twenty feet. It is estimated that the power thus provided is equal to that of Lowell, Mass.

There is also considerable power at Albany, Harrisburg, and Eugene City. At Springfield, three miles above Eugene City, great power is furnished by the Middle Fork of the Willamette. The two other forks of the Willamette also afford vast power. The Taulatan River likewise supplies great power. On the Yamhill, La Creole, Lackiamute, Mary's, and Ling Tom rivers, considerable power is obtained.

The water-power on the Upper Columbia is also very important. At the Cascades, sixty-five miles from Portland, the river has a fall of forty feet, from which power could be supplied to mills for miles on each side of the river. A number of tributaries of the Columbia—as, the Sandy, Hood, and Des Chutes rivers—and Mill Creek also furnish power. In Southern and Southeastern Oregon power is obtained at Ashland and on Link River, connecting the Upper Klamath with Lower Klamath Lake. The power on the latter is supposed to be equal to that at Oregon City.

At several points some of the smaller mountain streams have falls of from 100 to 500 feet, which could easily be utilized. In fact, there is hardly a corner of the State in which this cheapest of all powers does not exist in almost unlimited amounts. The climate permits all kind of labors, indoor and outdoor, at all times of the year. There is iron, wood, and coal in abundance. All the other raw materials are found, and all the superficial conditions are favorable. And, besides, Oregon manufactures have the practical protection of the long haul from the East. These conditions, with a population (in Oregon, Washington, and Idaho) of above half a million, and now increasing at a rate of upward of 150,000 per year, must soon cause the upbuilding of a general manufacturing industry. Every practical manufacturer who visits the country (and there have been many such visitors since the completion of the eastern railroads), sees a thousand opportunities which the old residents, in their experience, have overlooked. And there are assurances that this new field will not long remain neglected.

Next to the lumbering industry, already described, probably the most important is the manufacture of wooden goods, which has attained a high degree of perfection. There are at present half a dozen wool mills in operation in different parts of the State. The most important are located at

Salem, Oregon City, and at Brownsville, southeast of Albany. The cassimeres, flannels, and blankets manufactured in these establishments are of a very superior quality, and find a ready market both at home and abroad; especially is this the case with the blankets manufactured at Oregon City, which are sent to New York, where there they command the highest prices. The wool industry of the State consumes about 3,000,000 pounds of raw material, and the manufactured goods represent a value of about \$2,000,000 annually.

There are numerous first-class flouring mills, worked mainly by water-power, in the State. The total number is estimated at 150, and their product reaches up in the millions of dollars annually, finding ready sale at home, and at such distant markets as England, China, Japan, and the Sandwich Islands being preferred to California's best. The largest of these mills are located at Portland, Oregon City, Salem, Albany, Eugene City, Pendleton, and Minerville.

Ship-building has been followed for some time with great success at different points on the Oregon coast, and a number of fine vessels built there are now afloat. The Oregon iron works, at Albina, near Portland, have built a steam revenue cutter for the United States Government, which is said to be the finest vessel in the revenue service.

Not far from the iron mine, near Oswego, already described under the head of "Useful Minerals," a furnace and a foundry on a large scale (erected at a cost of \$500,000) have been in operation for years. The pig iron turned out by the furnace is of superior quality, and is sold in the home market, as well as at San Francisco, where it is deemed equal to Scotch iron. Some very fine castings have been made at these works. Over 500 men are employed. Charcoal, made from the timber in the immediate vicinity of the works, is delivered at a cost of 6 to 8 cents per bushel, but it is believed can be made still cheaper. Several other foundries, as well as machine shops, are running at other points.

Near Oregon City is a paper mill, producing thousands of pounds of straw and other paper daily. An oil mill at Salem produces about 200,000 gallons of linseed oil annually. Flax mills have been erected at Salem and Albany, with a view to the eventual manufacture of linen.

There are also some establishments for the manufacture of wooden-ware.

Hemlock and oak bark being obtainable in inexhaustible quantities, a number of tanneries are in operation, but they do not as yet supply the domestic demand. A good deal of leather is still imported, and at the same time large quantities of raw hides are exported.

Several establishments for the production of various agricultural implements are in existence, but they also are insufficient to supply the home demand. Most of the machines and implements in use are imported at great cost.

Furniture of all sorts is being manufactured from native woods to the amount of \$1,000,000 annually.

Although these manufacturing industries are scattered all over the State, Portland, being the general center of trade and of transportation and the chief seat of population, is the manufacturing center of the country.

Already the bulk of the small manufactures of the country is there. It is easiest and cheapest to mass materials at that point, while all about on every side, and in the vicinity of the city, there are sites affording every advantage. For factories requiring water-power, there are many favorable situations near at hand. In 1888, Portland employed nearly 5,000 men, and turned out products to the value of \$14,000,000. Among these industries, Portland employs 974 men in foundries, realizing products valued at \$501,000; in the manufacture of furniture, 400 hands, realizing \$800,000; in woolen mills, 345 hands, selling goods worth \$825,000. Its brick works, bakeries, cracker factories, rope works, soap works, candy, fruit, and confectioneries, employ 595 hands, yielding products valued at \$880,000. Saw mills employ 500 men, and turn out \$1,200,000 worth of lumber annually. Flouring mills had a product to \$3,357,662. One notable feature is printing and publishing, employing 375 hands, and turning out work to the value of \$810,000. The miscellaneous industries, blacksmithing, book-binding, brass foundries, box-making, coffee-works, cooperage, dyeing and cleaning works, artificial ice works, jewelry, plumbing and gas-fitting, saddlery and harness-making, and stoves, employ together nearly 1,000 hands, and turn out products of the value of over \$2,000,000.

EDUCATIONAL ADVANTAGES.

The value of a State as an immigration field does not altogether consist in the material wealth exhibited, nor does it consist alone in fertile fields and marvelous harvests, or in manufactured articles, but in these and in the institutions which she founds and fosters for the moral and intellectual training of her children. There is no subject connected with Oregon's progress and prosperity in which the people have taken a deeper interest than that of education. And they are manifestly and justly proud of their educational institutions. No State in the Union makes a more generous provision for its public schools, or has a more complete or effective system.

The educational system embraces the three departments—the common schools, the normal schools, and the State university. The Willamette University is located at Salem, the capital of the State, and is in a flourishing condition, with a full corps of professors and teachers. The Pacific University is located at Forest Green, and is supported by endowments. McMinnville College is at McMinnville, and Collegiate Institute at Albany. The State University is located at Eugene City, and the Corvallis College at Corvallis, to which is attached the State Agricultural College. The State normal schools are supported by appropriations from a general fund, and are free to all who desire to become teachers in the public schools of the State.

The higher education in the Willamette Valley is sought by a large number of the youth of both sexes, and several very excellent academies, colleges, and universities have open doors to the seeker of knowledge. Lack of space alone forbids reference in detail to the work done at these institutions. Suffice it to say that the State University, at Eugene, has in regular attendance about 200 pupils; the Willamette University, at Salem, 400;

the Forest Grove University, 150; the Normal School, at Monmouth, in Polk county, 250; the State Agricultural College, at Corvallis, 125. All these colleges have a full staff of teachers; the system of life of all is the same—none are colleges in the sense of common collegiate residence and board. All are purely teaching institutions, the pupils being lodged and boarded in the several towns, and meeting at the college or university buildings for teaching and recitations. It is at once the glory and the hardship of all that pupils of all ages, and attainments there meet on even ground—the glory because of the equality and comradeship of the classes, and the cheapness of the college course; the hardship, in that the very variety of the previous education and modes of life, and the greater range in age, make it difficult not only for teachers to grade and classify the pupils, but for the older but less well-taught ones to catch up and keep up with those who have had better early training.

The cost of tuition at these higher schools in Western Oregon varies from \$5 to \$12 per term. The cost of board and lodging a pupil may average, and should not exceed, \$5 per week. It is a common thing for the young aspirant to slave from June to October on the farm, saving every cent of his hard earnings, and then to economize and watch over the outgoing of every dollar for the necessities of life from October to June, while studying twelve or fourteen hours a day in and for the college classes. To such an one is the proverb true—"Receive instruction, and not silver, and knowledge rather than choice gold."

The especial pride of the people is the public school system. The most remote and thinly populated districts have all the advantage of the public school system. Under this management, the progress of these schools has been rapid, steady and wholly gratifying. New districts are formed each year, and nothing is left to hap-hazard, or incomplete management. There are 1,556 organized school districts in the State, employing 2,343 teachers, and expending annually \$670,377.50. During the last year 65 new districts were created. The head of a family who takes his children and goes to Oregon to cast his lot, need have no fears of failing in his duty to them in respect to education. They will find schools, and the best. The school fund in Oregon is in part provided for from the proceeds of sales of land which was granted to the State by Congress for educational purposes; but the larger part of the income is derived from a direct tax of three to four mills, which is imposed by the Legislature. As to the schools and educational facilities in Portland, they are among the finest.

Much attention is given to the management of the State charitable and reformatory institutions, which are among the very best in the country.

The church interest is a dominant one in Oregon, and without marshaling any statistical figures, or making comparisons, a fair account will be honorable to our people. Like all States on the west side of the Rockies, Oregon has attached to herself a diversified population, whose characteristics, in respect to social, moral, or religious usages, are as various as the lands and States of their birth. Oregon, in a religious sense, ranks well with many of the older States. There is scarcely a community or locality, no matter how isolated, but has its house of worship and a large and grow-

ing membership. In the cities and towns of the State the church edifices are commodious and handsome structures, and the pulpits are occupied by some of the most able ministers of the country.

RAILWAYS AND STEAMSHIP LINES.

The Union Pacific Railway Company affords the one great transportation system of Oregon and the Pacific Northwest. It is, in fact, to Oregon what the great Pennsylvania system is to the Keystone State. By virtue of its lease and operation of all the Oregon Railway and Navigation Company's vast interests, the Union Pacific's Oregon system, water and rail, encloses within its far-reaching arms that imperial domain, stretching from San Francisco to the British line; and from the Rocky Mountains to the Pacific Ocean. Its numerous railroad lines tap the finest wheat, lumber, wool and cattle districts and best cities, and its score of modern water-craft are at home in every harbor and in every navigable stream.

As has been shown in preceding pages, the great territory tapped and drained by the Union Pacific Railway Company's net-work of lines is a region of almost limitless possibilities in all the important elements of agricultural and mineral wealth.

As a vast granary—as a cereal-producing region—it cannot be surpassed in the world; while wool, lumber, and gold and silver bearing ores will always be very important articles of export.

Commencing with the main line which enters the State from the East at Huntington, the Union Pacific Railway's lines are as follows:

The Oregon Short Line Company has since been merged into the Oregon Short Line & Utah Northern Railway Company, which Company is now the direct lessee of the Oregon Railway & Navigation property. The leased lines of the Oregon Railway & Navigation Company comprises what is known as the Pacific Division of the Union Pacific Railway system.

For the purpose of operation, this is divided into five sub-divisions, viz.: Oregon division rail lines, Washington division rail lines, Ocean division, River division, Puget Sound division.

The following will show what lines are comprised in each division:

<i>Oregon Division—</i>	<i>Miles.</i>
Main Line, Portland to Huntington.....	404.4
Branch Lines:—	
Willows Junction to Heppner.....	45.2
La Grande to Elgin, Oregon.....	20.0—469.6

Forward169.6

Washington Division—

Main Line, Pendleton to Spokane Falls.....251.2

Branch Lines:—

Umatilla to Walla Walla..... 58.4

Bolles Junction to Dayton..... 13.0

Starbuck to Pomeroy..... 29.5

Tekoa to Mullan..... 86.9

Connell to La Crosse..... 53.0

Colfax to Moscow..... 27.8

Winona Junction to Seltice..... 47.7—567.5

Grand total..... 1037.1

Ocean Division—

Comprising the route between Portland and San Francisco, 675 miles, and the route between Portland and Puget Sound points. Three large, first-class iron steamships are running on the San Francisco line.

River Division—

Miles.

Columbia river, Portland to Astoria..... 98

Columbia river, Portland to Cascades..... 63

Columbia river, Upper Cascades to Dallas..... 41

Willamette river, Portland to Corvallis.....112

Snake river, Riparia to Lewiston..... 77

Total391

EQUIPMENT OF THE ROUTE.

On these various routes there are now running in the freight and passenger service, twelve steamboats. In addition to these the Company has several tow boats engaged in towing service between Portland and Astoria, their work being almost entirely confined to towing foreign ships coming to this port for cargoes of wheat destined for Europe. They also have two tugs running on the Columbia river bar, which are used for towing foreign ships between Astoria and the sea, in and out over the bar. This makes a total of seventeen steamboats and tugs in the river service.

The above constitute a sort of railway web-work, penetrating to the heart of one of the most fertile and productive regions to be found in the great Columbia River Basin, and affording the rapid means of transportation of freight and passengers. Every mile of the road has been built in a substantial manner, and is maintained in excellent condition. Permanence has been a very important consideration in all improvements.

The year 1889 was one of dulness in the wheat market, and any tendency to activity and enhanced prices, spasmodic and short-lived. Those who anticipated a reaction upward after the close of 1888, were disappointed; for the new year brought a steadily declining market. Opening prices were

\$1.40 for Valley and \$1.32½ for Walla Walla wheats. The market, with slight fluctuations, receded until May, when \$1.20 and \$1.15, respectively, was the value. At about these figures the new season opened in August, and has since remained within a range of 5c to 7½c per cental.

During October the maximum price of \$1.27½ for Valley wheat was reached. The market has since gradually eased off until \$1.20 to \$1.22½ was reached, and at these values we enter the new year.

Prices of Walla Walla wheat have been subject to more fluctuation. Competition from Puget Sound, between local buyers both at terminal and interior points, has tended to unsettle values. Unfortunately, also, a large area east of the mountains suffered a partial failure of crops. In some sections wheat which a few weeks earlier promised an abundant yield, was cut for hay, while in others only from one-third to one-half a crop was harvested. Prices for this grade opened with the new season at \$1.15, and under the influences named, quickly advanced to \$1.20, around which figure it has since fluctuated.

In the Willamette Valley an excellent crop of fine quality was harvested. Estimates of the surplus vary from 125,000 to 150,000 tons, while that available from east of the mountains will probably reach from 100,000 to 120,000 tons. About one-half to two-thirds of the Valley crop is said to have been sold, while probably 80 per cent of that east of the mountains has already changed hands.

The whole Columbia River Basin has not been inappropriately designated as "one great wheat field;" and yet only a very small proportion of the acreage has been brought under the subjection of the plow. Lumber, flour and feed, live stock, fish, wool, and general merchandise may be classed among the staple articles of export, which must ever increase with the growth of the country. By the navigation system along the Snake, Willamette, and Columbia Rivers, and on the Pacific Ocean and Puget Sound, the solution of the long discussed and much vexed problem of safe, certain, and swift transportation of the surplus product to a profitable market, is satisfactorily solved.

In connection with the railroad system the Company operates the Upper Columbia, Snake, Middle and Lower Columbia, and Upper Willamette rivers, also Puget Sound, having routes between Tacoma and Victoria, Seattle and Olympia, and on the Pacific Ocean between Portland and San Francisco. The boats used over these several lines are large, swift, and commodious. They are under the command of courteous and experienced officers, and the comfort of passengers is carefully provided for. Lewiston is the head of navigation east of the mountains, and Corvallis on the Upper Willamette in Western Oregon. These river fleets are operated to the best possible advantage with the railroad lines, and the two constitute a perfect and admirable system of transportation.

The Ocean Line between Portland and San Francisco has in use, four large iron steamers—the Columbia, Geo. W. Elder, City of Chester, and Oregon. This route is operated in connection with the Pacific Steamship Company. The latter Company is running its steamship, State of California, on the same route. Regular trips are made every few days between Port-

land and the Golden Gate. These four steamers are models of safety, swiftness, and comfort, and have large freight capacities. Their cost was in the vicinity of \$500,000 each, and no finer or safer craft sail any sea. They are efficiently officered; the several companies have had years of experience with all coast-line peculiarities, and are deservedly popular with the public. No accidents involving the loss of human life, or the destruction of vessels, have occurred during the long time the steamers have been running on the line.

Without exaggeration, it may be stated that nowhere on the American continent are there such ample and varied opportunities for tourists and pleasure-seekers as are to be found in the section of the Pacific Northwest reached and traversed by the Union Pacific lines. The ocean routes are traversed by fine steamships; its splendid river steamers ply the waters of the Columbia,—“the Hudson of the Pacific,”—which from its salmon fisheries to the eastern slope of the Cascades, and for 100 miles up its principal tributary, the Willamette, passes through a section of country unrivaled in beauty, fertility, and picturesqueness.

In addition to the Union Pacific lines is the Northern Pacific, which connects Portland with the cities of Puget Sound on the north, and also has a through route to the east; the Southern Pacific, which, by virtue of its lease of the old Oregon & California Railway, traverses almost the entire width of Western Oregon, north and south, and connects Portland with San Francisco; the Oregon Pacific, which, commencing at Yakima Bay, runs inland 100 miles, and is destined to cross the State east and west on about the latitude it has started; and the Narrow Gauge system of the Willamette Valley, having a total mileage of about 200 miles.

All these various rail and water lines afford the State an admirable system of transportation and development, and insure for its citizens and their industries such facilities as no other State west of the Rocky Mountains can boast. To impress the reader with the importance of the water lines, it may be added that upwards of seventy-five steamboats leave their docks in Portland every day to ply the waters of the Willamette and Columbia rivers and the tributaries of the latter. They go laden with merchandise, and return with produce. It is estimated that the steamboat tonnage (independent of ocean craft) which daily passes any given point below and near Portland is in the neighborhood of 800,000 tons. Of course the quantity of freight carried is very much less, but it is large enough to make an important share in the business of Portland. At Portland the grain product of the country is loaded into ships. The coast traffic with California on the south, Alaska on the north, and the various ports of Oregon and Washington, is very large, aggregating many hundreds of thousands of tons, and valued at many millions of dollars.

HUNTING AND FISHING.

There are many wild animals common to Oregon, and opportunities for hunting and shooting cannot be surpassed. Black bears are numerous, and in the more remote districts east of the Cascade Mountains the grizzly bear is captured. Of the deer family, elk of large size are in great abundance,

as well as the black-tail, the Virginia, and the mule deer. The cougar or panther, and many of the smaller *felidæ* are to be found. There are several varieties of foxes and wolves. The beaver, badger, seal (both hair and fur), raccoon, marten, mink, the fish and land otter, the musk-rat, weasel, skunk, and several kinds of rabbits and squirrels are plentiful.

It is probably of importance to the numerous classes who do not care to go from the immediate vicinity of the settlements for a hunt, that in all the valleys of the State, deer, pheasant, grouse, quail, snipe—the last four of unusual size—abound. In the fall, wild geese and ducks swarm along the many lakes and water-courses. Wild swan are very numerous on the lakes and rivers of Southeastern Oregon. In the sage districts of Eastern Oregon, the sage hen makes its home, and the jack rabbits are so numerous as to often become a pest to the farming population. Various kinds of game are killed by wagon-loads for market.

Thus the strong point about Oregon as a field for huntsmen is, that it is not necessary to make long and wearisome journeys away from rail and water lines to find enough game to insure right royal sport. Baker City, The Dalles, and numerous other towns on the Union Pacific's Oregon lines are desirable points of rendezvous, near good game fields, and possessing good hotels and outfitting accommodations.

In its food fishes, this region has a mine of wealth better than its best vein of gold or silver. Its innumerable rivers, creeks, and rivulets, snow-fed and mountain-born, clear almost as the azure above, are inhabited by myriads of salmon, trout, grayling, and other fish, gamey and eager enough for the bait, to make the real disciple of Izaak Walton question whether he ever fished before. But its great rivers, bays, and sounds are so alive with the fish of commerce that they have a more important interest to the thoughtful economist. Salmon of many varieties abound in millions, and are taken and canned by the thousands daily, nearly 500,000 cases, 24,000,000 cans, or 36,000,000 pounds, having been exported last year. Of the tons upon tons of this delicious fish shipped whole in refrigerator cars of the Union Pacific, we have no record at hand.

Then there is another fish, so superior to the salmon that, according to a connoisseur, the latter "is not worthy of lying in the same basket with it, and the speckled trout only as a gracious favor should be permitted to get into the frying pan in which it has been cooked." This is the cod, the true *gadus*, having the flavor of the Block Island cod, and fit food for men or gods, than which nothing more can be said. There seems to be enough of these along the North Pacific Coast to supply the fishmongers of all nations. Sturgeon are of immense size, weighing up to 1,000 pounds each, and so abundant that isinglass made from them has long been an article of export. Hérings are in countless numbers. Smelts—precisely the delicate fish of New York Bay—are taken by tons. Dog-fish in incredible quantities are manufactured into oil for export to distant parts of the world. Rock-fish, deep-sea perch, and other valuable varieties are as abundant as the above named, as well as crabs, shrimps, oysters, clams, etc.

According to the latest census, there are no less than 16,746 persons engaged in the fishing business on the Pacific Coast, not less than half of

them along Oregon waters. Of the total, 11,555 are fishermen, and 5,191 are shore or factory hands. There are engaged in the business 5,547 boats and 53 vessels. The total value of the industry, consisting of boats, vessels, apparatus, outfits, and buildings, is given at \$2,748,383. The total annual product amounts in value to about \$10,000,000. On the Columbia River the salmon fishing and canning business has the best development. Nearly 7,000 fishermen and factory hands and a capital of \$2,500,000 are employed, and the value of the product last year was nearly \$3,000,000. The Trade report for 1889 says:—

“The distribution of Columbia River salmon has changed remarkably in the past few years, and, luckily for our canners, a largely increased demand has sprung up in the United States, thus relieving in a great measure the glutted market, which would have surely come had canners been obliged to depend mostly on a foreign market. During the season of 1881-82, out of a total pack, on the Columbia River, of 501,325 cases, 308,324 were shipped foreign against 192,501 cases shipped domestic. The home market from this time on commenced to rally, and in the season of 1883-4, when 548,000 cases were packed, the distribution was almost equal as between the domestic market and the foreign. But in the season of 1884-5, in which the largest pack ever made on the Columbia River, 660,000 cases, was had, the United States, for the first time, took more salmon than Europe, 363,583 cases remaining in this country as against 296,285 cases exported. From this time on, the home market has rapidly increased, and during the season of 1888-89, there were only exported from the Columbia River 107,240 cases, as against 270,535 kept for the home market.

“THE TOTAL PACK

For this past season for the Columbia River was, in round numbers, 330,000 cases. The Alaska pack for 1889 has reached the unprecedented total of 688,000 cases. British Columbia follows with 414,000 cases, placing the Columbia third on the list with her 330,000 cases. When we look back only six years we see that the Columbia River packed last season only one-half of what was packed in 1883, and 190,000 cases short of so late a date as 1886. These are figures which show the necessity of the continuance of the Clackamas hatchery so that the river may again become alive with fish, and it is to be hoped that the cannery men themselves may become more alive than they have ever been to their own or the salmon interest.

“What is needed to revivify the canning industry of the Columbia River is a great abundance of fish so that fishermen can make more money at a small price per fish, than they now can make at a high price per fish, since they make such small catches per boat. More than this, there must be a unity of action on the part of the canners. The quality of the Columbia River fish is so vastly superior to any other, that all that is needed to keep it in demand in all markets, both foreign and domestic, is to place it in reach of the people. Its price should never come down to a par with Alaska or other brands; but the difference should not be so marked as to practically exile it from the markets of the world, save in comparatively small lots at

PACK FOR TWENTY-SEVEN SEASONS.

The pack for the past season, which has been pretty well cleaned out by shipments to Europe and the Eastern States, amounted to 465,000 cases, as against 402,000 cases in 1891. The following table will show the total packs of each year since the industry started, and will prove of interest, showing as it does the rapid growth of this great industry, which, from 4,000 cases in 1866, reached the enormous pack of 629,000 cases in 1883:

Cases.		Cases.	
1866.....	4,000	1881.....	550,000
1867.....	18,000	1882.....	541,000
1868.....	28,000	1883.....	629,000
1869.....	100,000	1884.....	620,000
1870.....	150,000	1885.....	553,000
1871.....	200,000	1886.....	448,000
1872.....	250,000	1887.....	354,000
1873.....	250,000	1888.....	360,000
1874.....	350,000	1889.....	321,300
1875.....	375,000	1890.....	429,300
1876.....	450,000	1891.....	402,150
1877.....	460,000	1892.....	465,550
1878.....	460,000		
1879.....	480,000	Total.....	9,324,100
1880.....	530,000		

Besides the salmon fisheries on the Columbia River, similar establishments, many of great importance, exist on the Willamette, the Umpqua, and Rogue rivers.

A grand stimulus has been given this industry by the competition of the Union Pacific's Oregon lines and the Northern Pacific, and vast shipments of this delicious and healthful food now find their way into every city or county of note in the interior of our own country—constituting a luxury within the reach of all—instead of being so largely taken, as formerly, 10,000 miles by ocean to foreign lands.

Salmon are taken with gill-nets, seines, and traps. The number of boats employed is about 1,500, including ten steam-tenders. The cost of a boat fully equipped with net is about \$600. The gill-nets used are from 250 to 300 fathoms long and 20 feet deep. The seines are from 100 to 200 yards long. The boats and nets are generally owned by the proprietors of the canneries, who lease them with the necessary implements and supplies to the fishermen on the condition that one-third of the catch is to be paid for rent, and the remaining two-thirds must be sold to the owner at a stipulated price. Each boat will catch on an average 2,000 fish during the season. With the exception of a few Indians, the fishermen are white men, chiefly Scandinavians and Italians. Three average salmon will fill four dozen 1-pound cans. The fishing is at its height for three months, from May to July, but the most abundant run in later years has been toward the last weeks of the season. Artificial hatching has been resorted to in order to maintain the supply.

The sportsman will be more interested in knowing that many other varieties of fish, differing much in quality and value, are very plenty. At certain seasons of the year, they crowd the seas, bays, estuaries and smaller rivers and creeks which flow into the ocean, and may be easily caught with fly and bait. Almost innumerable mountain streams and lakes, in sight or within easy reach of the Union Pacific lines in Oregon, are fairly alive with the gamey mountain trout, lake trout, perch or pike,

SCENERY, PLEASURE, AND HEALTH RESORTS.

Oregon is fast gaining fame in all lands for the variety, beauty, and sublimity of its scenic attractions. Its peerless rivers and marine views are, to a large extent, to be credited with this. The Columbia itself has no rival; for, in some respects, it is the grandest river in the world. It drains 400,000 miles of region so vast in extent and rich in resources that we will hardly, in this age, begin to comprehend, let alone appreciate it. It is three times as long as the Rhine, more than six times as large as the Hudson, and in scenic attractions is far ahead of either. Eight miles wide at its majestic mingling with the sea, two miles wide and of sufficient depth to float the largest of our ocean ships 100 miles inland, it also maintains such mighty volume as to be navigable for 1,000 miles along the greatest mountains of our west coast. Indeed, it alone of all the rivers of the West has broken these stern barriers. Through the fierce struggle which thus resulted, we have a glorious legacy in the way of the grandest river scenery in the world. The Palisades of the Hudson, the overhanging cliffs of the Upper Mississippi, and the embattled, precipitous environments of the Rhine, are here. There are also elements of grandeur in views of snow-clad peaks, of entrancing beauty in peaceful passages of the great river through miles upon miles of mountain-locked lakes, and of the phenomenal and marvelous in other ways not possessed by any of the world's more noted rivers.

The Lewis Fork, or Snake, in Shoshone Falls boasts a cataract much higher, and by many visitors pronounced more beautiful and interesting, than Niagara. While such grand scenes line the Snake Fork, far to the northward, along Clark's Fork, is an equal accumulation of splendors of the physical world. Lake Pend d'Oreille, through whose entire length of 100 miles Clark's Fork plows its way, although 500 miles from the ocean, could float the navies of the world; Lake Cœur d'Alene, nearly forty miles long, and scarce rivaled anywhere for magnificence of Alpine setting or beauty of pine-clothed islets; Spokane Falls, a cataract of wondrous power and beauty, and some of the most sublime vistas of cañon scenery mind can conceive, are all undying feasts for the tourist's eye.

Down the Columbia, from the junction of Clark's Fork with the Snake, are 200 miles of river scenery unequalled in the world. To the south, in the vast seclusion of Eastern Oregon, is the mountain range which of all others, the æsthetic Oregonian loves. Lower than the Sierras or the Rockies, with a grace of outline and a luster of foliage unknown to either, the Blue Mountains are the fairest August garden on earth. Cape Horn (700 feet high) and Castle Rock (1,500 feet) are distinguished landmarks which rise precipitous from the Columbia's edge. The Cascade Range shoots up from 1,000 to 3,000 feet along the passage of the mighty river through it, and from its battlements are such garnishings of a wondrous picture as Multnomah Falls, 850 feet high, La Tourelle Falls, 400 feet, and a half a dozen others, besides which Minnehaha or Montmorency would be counted very modest creations. Through frequent openings in gorges, or at the verge of a beautiful stretch of plain, can be seen towering above all other objects, Mount Hood, snow-capped from base to summit, and, as an enthusiastic admirer

has written, "oppressive in its majesty, beautiful in form, angelic in its whiteness—the union of all that is great, and pure, and impressive."

Referring to the attractions of the Union Pacific Route, down the Columbia, a prominent writer says: "Few regions present greater attractions to tourists, pleasure-seekers, and lovers of the picturesque and sublime in nature. All along the line there is a succession of pleasant surprises, something ever to attract the interest and challenge the admiration of the traveler. By boat, magnificent views can be obtained along the Upper Columbia and Snake, while the grandeur and beauty of the scenery of the middle and first part of the lower river, where the noble stream has cleft its mighty and resistless pathway seaward through the heart of the Cascade Range, stand unsurpassed on the American continent, if not in the whole world. Nothing in the Alps, the Pyrenees, or along the picturesque banks of the Rhine or 'arrowy Rhone' overshadows the weirdness of the elements of sublimity of this home scenery. A river ride in the elegant Union Pacific boats from Portland to The Dalles is a revelation of wonder and beauty. One of the most engaging features of the trip is the tracing of the company's railway track on the south bank of the lordly Columbia, which, winding in, through and around the immense boulders, under towering bluffs, creeping fearlessly past stupendous heights, rattling over miles of lofty trestles and bridges, and anon lost to view behind a clump of green trees, has been rightly pronounced the most marvelous piece of railroad engineering in the world."

A trip up the beautiful, winding Willamette during the favorable season is a delightful one. The ripening wheat fields, the sunny farms, creeping down almost to the water's edge, with a background of thrifty orchards and verdant woodlands, and withal, the peaceful thrift and rural repose of the scene, form a happy contrast with the bold, imposing features of the Columbia and Snake rivers.

New and striking features of beauty—views of distant mountains, snow-clad peaks, glimpses of forest, valleys, hills, and river and ocean stretches—can be constantly caught while making a trip down the Columbia or Astoria, or in threading the watery labyrinths of Puget Sound, the "Mediterranean of America."

There are numerous beautiful and interesting lakes in Southern Oregon, the principal of which are Malheur, Klamath, Goose, and Warner's lakes and lake Harney. High among the mountain ranges in various parts of the State are scores of other lakes, unnamed, but deserving the homage of the appreciative tourist who is willing to "rough it" somewhat to enjoy nature in her loveliest moods. Here the angler reaps his harvest, while in the sylvan forests surrounding, the huntsman can always count on rich returns of noble game.

Crater Lake, which, with ample surrounding, has recently, by act of Congress, been set apart as a National Park, will undoubtedly soon become one of the great resorts of the West. It is situated in the northwestern portion of Klamath county, 22 miles west of north of Fort Klamath, and about 90 miles east of Medford, Jackson county, and 328 miles south of Portland, which is the best point to leave the Oregon & California Railroad.

The Jacksonville and Fort Klamath military road passes within three miles of the lake, and the road to the very walls of it, is an exceptionally good one for a mountainous country, while in near proximity may be found remarkably fine camping grounds. The lake itself is almost egg-shaped, and is about six miles wide by eight long. The water's surface is 6,300 feet above sea level, and is completely surrounded with cliffs or walls, from 1,000 to over 2,000 feet high, which are scantily covered with fir. To the southwest is Wizard Island, 600 feet high, circular in shape, and slightly covered with timber. In the top of this is a depression, or crater—the Witches' Cauldron—90 feet deep and 475 feet in diameter. This is evidently the last smoking chimney of a once mighty volcano. The base of the island is covered with very heavy and hard rocks, with sharp and unworn edges, over which scarcely a score of human feet have ever trod. Farther up are deep beds of ashes, and light, spongy rocks and cinders, giving evidence of intense heat. Within the crater, as without, the surface is entirely covered with volcanic rocks, but here it forms one of the hottest places on a clear day in August it has ever been our lot to witness. Not a breath of air seems to enter, and the hot sun pours down upon the thousand rocks and stones that reflect its rays with an intensity that seems to multiply beyond conception.

There is probably no point of interest in America that so completely overcomes ordinary Indians with fear as Crater Lake. From time immemorial no power has been strong enough to induce them to approach within sight of it. For a paltry sum they will engage to guide you thither, but before reaching the mountain top they will leave you to proceed alone. Crater Lake is but a striking memento of a dead past. Imagine a vast mountain 6 by 8 miles through, at an elevation of 7,000 feet, with the top removed and the inside hollowed out, then filled with the purest water in the world to within 2,000 feet of the top; then place a round island in one end 600 feet high; then dig a circular hole tapering to the center like a funnel, 90 feet deep and 475 feet in diameter, and you have a perfect representation of Crater Lake.

There are many hot springs of well-tried mineral waters in Oregon. Among those particularly efficacious in the cure of rheumatism and kindred disorders, the large group which forms what is known as the "Hot Lake," along the Union Pacific Railway, near La Grande, Eastern Oregon, is probably the most notable. They have benefited thousands, and cured many. In Lake county, Southern Oregon, are several noted hot springs, and these offerings of Nature's laboratory are numerous in other localities.

As for seaside resorts, no region is more prolific than the 300-mile coast line of Oregon. Prominent among these is Ilwaco, reached by the Union Pacific's magnificent "Floating Palaces" in a most enjoyable Columbia River ride, 100 miles from Portland. Here are good hotel accommodations, a splendid surf, with all necessary bathing facilities, and the other usual attractions of a modern seaside resort. Only ten miles farther is Clatsop Beach, possessing like charms. At the latter is the Seaside House, having sufficient accommodations for 200 guests. The woodlands adjacent abound with elk, bears, and deer. When we have had our fill of salt water we can here don our shooting jackets and spend many a delightful hour in the

recesses of the forest, where we may hope to participate in an encounter with an affectionate cub or an affrighted hare; or, pushing farther inland to any of the numerous creeks within a radius of a mile or so, there is an abundance of fine trout, hungry and foolish. If the catch is not quite satisfactory, the farmer boys in the cottages hard by always have a good-looking string of fish for sale at a reasonable figure.

At Tillamook, Nestucca, Coos Bay, and Alsea, are other ocean resorts of more or less merit. It is becoming the popular thing for thousands of Oregonians to go regularly to the seaside in summer, and eastern visitors readily catch the infection.

With the completion of the Union Pacific Railway's connection with this domain and the operation of its branch lines, including the steamers on the interior rivers, and the erection of good hotels at the chief points of interest, the difficulties of traveling have been minimized, and those who are anxious to visit this region, and are only held back by the fear that the ordinary conveniences are not provided, need have no hesitancy on this score. Relatively speaking, a journey through the Pacific Northwest,—a trip that is to include the glorious passage of the Columbia through the Cascade, a visit to Mount Hood and Mount Rainier, Crater Lake in Southern Oregon, sea-bathing at Astoria and vicinity, a thirty days' stay in Alaska and a couple of weeks' trout-fishing at Cœur d'Alène, in the Pend d'Oreille Lake country, or Joco River,—will be somewhat expensive, perhaps, but the benefit derived and the pleasure enjoyed therefrom will repay the outlay of money.

To those who have been accustomed to annually going to Europe as a panacea for their ailments, allow us to suggest that over on this side of the Rocky Mountains, and in this corner of our common country, they will find a climate as healing as any on other continents or fabled isles. No sane man talks about perfection in a world of imperfection; yet in this vast domain in the Pacific Northwest, one can find, and with little trouble or discomfort and expense, comparing it with the cost of a European trip, innumerable charming resorts in which to pass the summer. As a local authority puts it: "The invalid may choose his own altitude, and so arrange it that he shall sleep under a winter supply of bed clothing in a breezy tent, or under a lighter supply of covering (though always under considerable clothing) in a comfortable house. There is such a thing for an invalid as having too much climate, but here he can choose his climatic environments as he can select his physician or his society in New York. Whatever may be his selection here, he escapes the bulk of climatic defects, and does not, in any event, suffer alternate boilings and freezings. He escapes enervating heat and severe cold, with no raw winds or cyclones. Free from malaria, with an elastic, buoyant atmosphere, where a man does not waste, but renews, his vital forces, it is certainly the natural resort of the invalid. It is Nature's sanatorium for the man suffering from nervous prostration, with its long train of tormenting ills; for the over-worked man; for those who are depressed by the dregs of malarial fever; for all those who suffer from the sudden and extreme atmospheric changes. And this equality of temperature is a wonderful relief to those suffering from lung diseases of any kind. Catarrh, asthma, and all the various bronchial affections are greatly bene-

fitted by even a short residence in this region. As we have said, there is a strange mingling of mountain and plain, hill and valley, and all the unusual and unexpected combinations, and there is furnished whatever variety of climate a man may need for his health."

What is more charming in summer than a climate where the cooling breezes from the snow-clad mountains and the frigid waters of the streams that have their birthplace in these high altitudes, make an atmosphere always cool enough in the day-time to be thoroughly enjoyable, and at night enables one to sleep soundly beneath a goodly quantity of bed covering? When you add the sports of rod and gun, the grateful odor of the pine and cedar, the hemlock and fir, all health-giving in quality, you have something of the Northwest. A season here makes the visitor reluctant to change. In this superior dry climate, so different from that of the Atlantic Coast—even in the mountain region there—an early morning ride is a luxury indeed; and a bath, alike to body and mind, a stimulant better than the choicest vintage.

Oregon has more than her share of attractions for the tourist,—places where the citizen or traveler, in pursuit of health, pleasure, and recreation will sojourn for the season and part with regretfully. There are a score or two of resorts where there is inspiration in the air, and where comforts and conveniences of all kinds may be found at ordinary prices of living. What with variety of pastoral scenery, extent of forests, nobleness of rivers, grandeur of snow-shrouded mountain peaks, and verdure-clothed hills, richness of color, a flora that is rich beyond comparison, a fauna that is strange and interesting, a climate which for serenity and evenness has no superior anywhere, healing waters of wide celebrity, and all within reach of the tourist, there is enough to captivate his fancy and lure the invalid, artist or scientist from chamber, studio, or laboratory.

OREGON BY COUNTIES.

In giving a description of the State of Oregon by counties, it has been thought best not to give them in alphabetical order, but as the State is divided into two great divisions by the Cascade Mountains, to group them as under the two divisions of Eastern and Western Oregon. In doing this, the division into agricultural, grazing, timber, and mineral lands has not been maintained; but beginning with the county in the northwest corner of each division, they are taken in their regular order running east and west to the south.

WESTERN OREGON

Takes in all of the State of Oregon west of the comb of the Cascade Mountains and includes Clatsop, Columbia, Multnomah, Washington, Tillamook, Yamhill, Clackamas, Marion, Polk, Benton, Linn, Lane, Douglas, Coos, Curry, Josephine, and Jackson counties.

CLATSOP COUNTY.

Clatsop county lies in the extreme northwest corner of the State. It is bounded by the Pacific Ocean on the west, the Columbia River on the north, Columbia county on the east, and Tillamook county on the south. The surface of the county is largely mountainous, but there is considerable amount of rich bottom land, well adapted to cultivation when the ground has been cleared of timber. There is also some very rich tide flat land which only wants diking to make it very valuable for hay.

Clatsop Plains, a strip of land lying along the seashore, which has been settled for thirty-five years, is the largest body of agricultural land in the county. The soil is light and sandy and produces vegetables, grain and small fruits in abundance. But little wheat is raised, oats and barley being the principal cereals. Hay is the chief crop, and dairying the leading occupation with the farming population, and its dairy products are especially fine.

The most notable resource of Clatsop county is her timber. More than nine-tenths of the whole area is densely covered with trees, which can be matched nowhere except on the Pacific Coast, and cannot be excelled here in any other district. Besides supplying her own mills, this county furnishes many logs to other mills along the Columbia River and at Portland.

At the present time the chief industry of Clatsop county is salmon fishing. There are no less than twenty-four salmon-packing establishments in her limits, affording employment during the fishing season to upwards of 5,000 men, and indirectly to as many more.

Clatsop county is a good field for immigration. The special advantages are abundance of vacant lands, and facilities for cheap water transportation. Indeed, there are a very few miles of road in the county. Numerous rivers, creeks and tide sloughs intersect the long frontage on Columbia River; and, since what agricultural land there is lies in close proximity to these, water is the easiest and cheapest means of transportation. For settlers who must earn their living by "outside work," here is an exceptionally good field. The fisheries and the logging camps afford employment at good wages, and an industrious and capable man need never be out of work.

The county is not connected by rail with the general railroad system of the country, but the Columbia River offers it cheaper means of communication with the general market at Portland than it could have by rail. There are two regular day lines and one night line of steamers between Portland and Astoria, and all inward and outward bound sea-going vessels touch at Astoria on their way to or from Portland.

Astoria, population 6,184, the county seat of Clatsop county, is the oldest settled point in the Pacific Northwest, having been a trading post long before the general settlement of the country. It is situated on the Columbia River, about fifteen miles from the sea; and though its tributary country is but thinly settled as yet, and it is the only place in the county that has attained to more than the dimensions of a village, its position near the mouth of the Columbia has made it the headquarters and general depot of the fishing

industry, and a commercial port of great importance. In population, trade, and the amount of capital centered and employed there, it is exceeded in importance by no other city in the State of Oregon, save Portland. The city is well built, is supplied with water by a water-works owned by a private corporation, has a complete system of public schools, churches—in which most of the leading denominations are represented—and all the comforts and conveniences usually found in cities of from 5,000 to 10,000 population.

COLUMBIA COUNTY.

Columbia county joins Clatsop county on the east. On the north and east it is bounded by the Columbia River, and on the south by Multnomah county. It covers an area of nearly half a million acres. Its shores are washed for sixty miles by the waters of the Columbia, and the numerous bays, inlets, and indentations along the river afford excellent facilities for trading and fishing. Light steamers ply up and down the lesser rivers flowing into the Columbia. The county is diversified by a mountain range that runs north and south. The range slopes westward, and is the watershed that sends the rainfall to the ocean through the Nehalem Valley and eastward in numerous streams to the Columbia. Columbia county's mountain range is covered with immense forests of yellow fir, and, what is of still greater importance, overlaps exhaustless mines of coal and iron. In fact, it has been calculated that Columbia county alone could for fifty years supply the entire demand for coal and iron of the United States.

In the same mountains are enormous beds of lime, in fact everything necessary for the establishment of a great steel and iron industry.

The principal valleys of the county are the Nehalem, Beaver, and Clatskanine, the largest and most important of the three being the Nehalem. This valley has a large area of excellent lowlands abounding in ash and vine maple, while the hills are covered with a dense growth of fir and cedar timbers. The Clatskanine and Beaver valleys, while not so large as the Nehalem, possess the advantage of being more convenient to market, and the soil in both is of excellent quality.

Columbia county has, perhaps, as wide a range of resources as any other county in Oregon. Besides facilities for dairying, general farming, fruit-growing, etc., which it has in common with its sister counties of Western Oregon, it has salmon, timber, coal, and iron in quantities practically inexhaustible. There are also some very fine bodies of cedar, those of the red variety being especially fine and abundant. No county in Oregon offers better attractions for immigration. There is still much vacant land awaiting settlement, and while it takes time and labor to make a farm, it can be done. One acre in Columbia county, near the Portland market, is worth ten in a more remote situation. Columbia county has unequaled facilities for transportation. Steamboats connect all its river points with Portland, with low rates for freight. The Northern Pacific affords rail transportation to the southern half of its river districts.

The principal towns of the county are: St. Helen's (the county seat),

Columbia City, Ranier, and Clatskanie, the first three being situated on the Columbia River.

MULTNOMAH.

Multnomah county is bounded on the north by the Columbia River and Columbia county, on the east by the Cascade Mountains, on the south by Clackamas, and on the west by Washington county. It is not from breadth of area nor from any peculiar fertility that this county is the most populous and wealthy in Oregon, but from the circumstance that Portland, the commercial metropolis and principal sea-port of the entire Northwest, is within its limits.

Multnomah is a narrow strip lying upwards of fifty miles along the south bank of the Columbia river, forming the inner elbow of that stream at the point where it changes from a westerly to a northerly course. The county is nowhere more than twelve miles in width. It is made up of bottom land, along the rivers, and heavily timbered upland, all adapted to cultivation, the latter, however, not till after clearing, which is here a laborious and costly process. There is little general farming in Multnomah county; but dairying, market-gardening, fruit culture, and the like, are profitable industries, and some thousands of people are engaged in them.

WASHINGTON COUNTY.

Washington county is bounded on the east by Multnomah and Clackamas, north by Columbia, west by Tillamook, and south by Yamhill county, and is a very different county from that of Columbia or Clatsop, heretofore described. Much of this county is taken up by the Taulatin Plains, a northern extension of the Willamette Valley. Washington fronts neither on river nor ocean, and is purely a farming country. Like all of Western Oregon, it is finely watered and wooded. Its rich soil produces everything that grows in temperate latitudes, including the whole range of field, garden, and orchard products. The settlements in Washington county were among the earliest in Oregon, and it is in no sense new country. There are good roads, fine dwellings, schools, and churches everywhere. Washington county has very little to offer to the immigrant in the way of vacant lands, but the big farms of early days are being broken up into small tracts, and a farm sufficiently large can be bought at reasonable cost. The price of land ranges from \$5 to \$50 per acre, and the sellers are willing usually to make long terms of payment. In the foot-hills there is still some vacant land, and within the past two years there has been a considerable settlement of new-comers in the foot-hills.

The soil of Washington county varies, of course, according to local conditions, but it may be described in general as a strong clay sub-soil, with a covering of from a few inches to several feet of the richest loam, and can be plowed without injury to the soil almost every month in the year. The upland, or hill land, is very pliable and can be plowed at any season of the year. The soil of this county is of great fertility, and so durable is it that

on the Taulatin bottoms the thirtieth successive crop of wheat has yielded forty bushels to the acre; and the durability of the soil in other localities indicates that Nature has endowed it with almost inexhaustible fertility. Farmed as the lands of the Genesee Valley or of Northern Illinois are farmed, there is hardly a reasonable limit to the capacity of its soil.

Washington county is connected with Portland by the west side branch of the O. & C. railroad, and much traffic is still done in wagons into Portland. It can reach tide water at Portland at less expense of time and money than any other farming county in the State, and this gives now, and always will give, a marked advantage to the farmers of this county. The advantage of a few cents per hundred in transportation amounts in the course of the year to a considerable aggregate.

Washington county has many villages and two considerable towns, Hillsboro and Forest Grove. The former is the county seat, having a population of about 500, and the latter is a school town and a local distributing point, of about the same population.

TILLAMOOK COUNTY.

This county is bounded on the north by Clatsop county, on the east by Washington, Yamhill and Polk counties, on the south by Benton county, and on the west by the Pacific Ocean. It is separated from the Willamette Valley by a considerable range of mountains, the comb of the Coast Range being in fact its eastern boundary. While a near neighbor to the metropolis, Portland, in point of miles, it is in fact one of the most isolated districts of the State. The road across the mountains is fairly good in summer, but often impassable during the winter. It is little used for general traffic, which is carried on in small schooners from Tillamook Bay via the ocean and the Columbia River. Tillamook is an attractive county, well watered and finely timbered, with two good schooner ports, numerous rivers, and much open, fertile country. It is described as a verdant paradise. It is particularly adapted for dairying, and this business is already an important item in the local industry. The development of Tillamook county has been retarded by its isolation. No established or regular line of travel leads to it. It has always been a region removed and apart from Western Oregon, of which it is an integral part. It must, however, soon gain a large share of the incoming population.

The largest and oldest settled section of agricultural land is Tillamook Valley; surrounded by mountains on the north, east, and south, and sheltered from the ocean winds by a range of high hills that rise between it and Tillamook Bay, it possesses the most delightful climate of the whole coast of Oregon. Back of the fringe of timber, a mile or two deep around the bay, the valley opens in a fine variety of prairie, woodland, knoll, and ravine, stretching away for miles to climb at last the easy, wooded slopes of the Coast Range. Three or four rivers come down from the mountains through narrowing arms of the valley, gathering the bright, pure waters of hundreds of mountain rivulets and brooks. The best of valley land (meaning that which is prairie and most easily cleared) is, of course occu-

pied by settlers already there. But there is room for thousands of homesteads on Government land, which can be put in cultivation at an expense of a few dollars per acre.

The country is finely adapted to general farming, stock-raising and dairying, and the land is literally "dirt cheap." Two bays, easily approached from the ocean, afford ample port facilities for coasting vessels, and numerous small rivers and inlets make transportation cheap and easy. The country is new, and little has been done in the way of school-house and church building; but the soil is rich and cheap, and the market is not very difficult.

The Government light-house on Tillamook Rock in this county is one of the most wonderful in the world, and is well worth a visit.

YAMHILL COUNTY.

Yamhill county is bounded on the east by Clackamas and Marion counties, on the south by Polk county, on the west by Tillamook county, and on the north by Washington county. It contains an area of 720 square miles or about 290,743 acres. The greater portion of its land is prairie, which is ordinarily just rolling enough to make it well adapted to farming purposes. It is estimated that above one-half of its area is under cultivation, the balance being in pasture or timber; the latter is about evenly scattered throughout the county, making timber for rails and wood easily accessible to all. The timber consists of white, red and yellow fir, spruce, hemlock, oak, ash, cedar, maple, alder and several other less valuable varieties. The western part of the county borders well upon the Coast Range, which, when brought under cultivation, is found to be as productive as are the valleys. Many beautiful streams, abounding with trout, come winding down through the hills and across the valleys, not only furnishing pure water for man and beast, but in many instances affording good water-power.

The soil of the valleys is a rich black loam from four to fifteen feet deep, while that of the hills is a red loam of about equal depth and fertility. It is very fertile, producing large crops of grain, grasses, fruits, and vegetables. It is especially adapted to raising plums, prunes, pears, apples, and berries of all kinds.

Every visitor to Yamhill county is enthusiastic over its many charms. A country sufficiently level for general cultivation to the hilltops, yet so varied in form from every point of view, seamed with sparkling streams, diversified by forests of oak and darker evergreens, and bordered like a basin by mountain chains—it is indeed very beautiful to look upon. Yamhill, like Washington, is well planted. Civilization and industry got an early start here and kept up with the progress of the times. As in other parts of the Willamette Valley, there is no vacant land in Yamhill county, but settlers find it easy to buy land at from \$5 to \$60 per acre on easy terms of payment. Much land is held on sale for speculative purposes, and the process of breaking up the big donation claims of 640 acres, or one square mile, goes on steadily.

Yamhill county has several towns, two of considerable size and importance, McMinnville and Lafayette. The former is the more populous and progressive, and after a long and hard fight has just succeeded in wresting the county seat from the latter. The population of McMinnville is 1,368; and that of Lafayette 365.

CLACKAMAS COUNTY.

Clackamas county is bounded on the north by Multnomah county, east by Cascade Mountains, south by Marion county, and on the west by Marion, Yamhill and Washington counties. The eastern boundary of the county being the summit of the Cascade Mountains, a considerable portion of its lands is mountainous. The area of the county is about 1,250,000 acres, and from one-half to two-thirds of this is in bottom, prairie, or rolling land, suitable for general agriculture and fruit culture, but much of it is still covered with a heavy growth of timber, and must be cleared. Numerous mountain streams traverse the county from east to west, dividing it into bottoms and plateaus affording a variety of soil. On the bottom lands the soil is generally a black loam of surpassing fertility, especially adapted to grasses, oats, barley, and vegetables of all kinds. The table lands are of a reddish clay loam nature, very fertile, answering quickly to all kinds of manures, and excelling the bottom lands for wheat, clover, and fruits. The uplands, by reason of their perfect natural drainage, afford special advantages in the raising of fall wheat. These lands can be plowed at any time during the winter, a hard rain not stopping the plow for more than a few hours, thus insuring early crops and an early harvest.

An abundance of good land, wholly or partially improved, may be had at from \$6 to \$30 per acre, and a fair proportion of desirable land is still in the hands of the Government and open to settlement by homestead or pre-emption.

The western part of Clackamas has excellent transportation facilities. The Oregon & California Railroad and the Willamette river connect it by both rail and water with Portland, to which it is a near neighbor. The eastern section of Clackamas county is high and remote and far from transportation. Its development has been slow in consequence. A scheme for a railroad to connect it with Portland is now being agitated, and it is hoped that before another year it will have taken practical shape.

Besides its agricultural interest, Clackamas has splendid resources in its timber, iron, and water-power. The iron-ore beds at Oswego, only seven miles above Portland, on the Willamette river, have been worked for years, and newer and larger furnaces are in process of construction. The Oswego Iron Works are operated by natural power near at hand. A few miles south, at the falls of the Willamette river, there is water-power second to none in the whole United States. The timber in the mountainous part of the county is of the best quality and in practically inexhaustible supply.

This county offers many inducements to new comers—cheap lands, proximity to the general market at Portland, with schools and churches already established.

Clackamas county has but one important town, Oregon City, on the east bank of the Willamette river, twelve miles south of Portland. It has a population of 3,062, and besides its character as a trading town is an important seat of manufacture. A company has been formed to apply the water-power and sell it to factories upon easy terms, and it is only a matter of time when Oregon City will be a great manufacturing town.

MARION COUNTY.

Marion county is bounded on the north by Clackamas county, on the east by the Cascade Mountains, on the south by Linn county, and on the west by Polk county. It covers an area of about 500 or 600 square miles. The site of the first settlements in Oregon (excepting Astoria) are within its limits, and it is more closely populated than any other agricultural county in Oregon. It is in the very heart of the Willamette Valley, and contains comparatively little obstructed and waste land. It is truly a beautiful county, bountifully watered and wooded, varied in form, affording everywhere not only practical advantages but beautiful prospects. Its mountainous district is but a small corner far to the east. A ride through Marion county in any direction carries one past a succession of finely cultivated farms. Patches of timber are sufficiently numerous to give variety to the county, but not so extensive as to limit its adaptability to general farming. There is no vacant land to speak of in Marion county, but, as elsewhere in Western Oregon, farming land can be bought at a reasonable price. Figures range all the way from \$4 to \$60 per acre, varying with character of soil, situation and value of improvements. Probably not half the dozens of farms in the county would command a higher figure. Good farms convenient to market may be had at from \$12 to \$15 per acre.

The soil of Marion county is very much the same as that of other counties of the Willamette Valley. That of the prairie lands is a dark, rich loam, and exceedingly fertile. That of the hills is of a reddish color, and is of the best land for cereals in the State.

The general market and source of supply for Marion county is the city of Portland, and it is connected with that city by two railroads and the Willamette River, which bounds it on the west, and is navigable at all seasons of the year to south of its southern boundary. The railroads run north and south through the county, and afford ample transportation facilities to all parts, except some of the more remote sections on the east side.

Marion county has numerous small towns varying in population from 100 to 500, and one important city, Salem, the seat of the State government. Salem has a population of about 6,000, and is a very attractive place. Besides the capitol and the several State institutions, it has a college under the general control of the Methodist Church. A free bridge costing \$60,000 spans the Willamette River at Salem, and connects it with Polk county. There are two large flouring mills, an oil mill, a chair factory, and other industrial enterprises. A fine water-power is employed to supply power, and its capacity could be wonderfully developed at small cost.

After remaining in a dead-and-alive condition for many years, Salem has recently developed an enterprising spirit. The bridge above referred to was built by voluntary taxation, as a scheme of local development; and a revived public spirit is seen in new business buildings and dwellings and a more active look in the streets. An establishment for the evaporation of fruit on a large scale has been built at Salem during the past year, by the enterprise of a new-comer. It is largely an experiment, and so far it has proved entirely successful. The enterprise will greatly stimulate the production of fruit, for which Marion county, in common with the rest of the Willamette Valley, is finely adapted.

POLK COUNTY.

Polk county is bounded on the north by Yamhill, on the east by Marion, on the south by Benton, and on the west by Tillamook county. It contains about 360,000 acres, and generally speaking is an arable county, its lands being divided into prairie and rolling or hill lands. The soil of the hills is usually of a reddish color, and it is said to be of the best wheat land in the State, the wheat grown in this soil being pronounced by millers the richest in flour. The soil of the prairie is a rich, dark loam and is very productive in all the cereals. The soil in the hill lands is celebrated for its fertility. In the hills back of Dallas, farms have been cleared and show this unfailing productiveness. The immigrant has a splendid opportunity here, as the land west of eight or ten miles from Dallas and back to the Coast Range is all either railroad or government land open to settlement on easy terms. A ready market for all kinds of produce can be found at Dallas. These hills are rapidly being cleared off and made into beautiful farms. The soil of nearly all of Polk county is very fertile and durable, and as a whole cannot be excelled by any county in Oregon or any other State.

Wheat is the staple agricultural product of the entire county. Its superior quality has made it famous in the grain markets of the world, and insures for it the highest price; the yield with good cultivation is from 30 to 40 bushels to the acre. Oats also yield heavily, and are largely exported. Hops are an important product. They are grown on the river bottom-lands. The crop runs from 1,500 to 2,500 pounds per acre. Vegetables of every variety and of the finest quality are produced. Potatoes, onions, cabbage, turnips, cucumbers, and all staple garden products are grown in great abundance and of excellent quality. Fruits of all kinds are raised throughout the country in abundance, especially in the hill lands, which are said to be better adapted to fruit-growing than the valley.

Polk county is connected with the general market at Portland by two railroads, and by the Willamette River, which bounds it on the east, and is navigable at all seasons of the year to south of its southern boundary. The principal town of Polk county is Dallas, the county seat, with a population of 848. There are also several other small towns.

BENTON COUNTY.

This county is bounded on the north by Tillamook and Polk counties, on the east by Linn county, on the south by Lane county, and on the west by the Pacific Ocean, and extends east and west upwards of 50 miles from the Willamette River to the ocean. It covers an area of about 1,300 square miles. The eastern third is like the country which forms Yamhill and Polk, its middle third is mountainous and heavily timbered, and its western district is a counterpart of the Tillamook country. In proportion to its area, Benton county is less closely populated than its northern neighbors. Its mountainous district, which is finely adapted for range, is largely vacant country, and the same may be said of its coast district, which is intersected with bays, rivers, and sloughs, and is splendidly adapted to dairying. The timber in this district is one of its many valuable resources.

The most important advantages enjoyed by Benton above her neighboring counties, is the seaport of Yaquina Bay. For many years this port has been a resort of local commerce, but within the past three years a railroad (the Oregon Pacific) has been built, connecting the bay with the Willamette Valley. The road is now being extended eastward across the State, to an eastern connection. It is proposed to make Yaquina a commercial port, and a beginning has already been made. At Yaquina City, a town newly established, there are extensive railroad shops and warehouses. Ocean steamers of from twelve to fourteen-feet draft run regularly between Yaquina and San Francisco at intervals of four days; coasting vessels also visit the port, but it is not accessible to deep sea vessels engaged in the foreign trade. Benton county is also connected with Portland, its chief market, by one railroad and by the Willamette River, which is its eastern boundary and is navigable at all seasons of the year as far up as Corvallis, the county seat of Benton.

The character of the soil, as to the different classes of prairie and hill lands, is very much the same as in Polk county.

Wheat is the staple crop, with an average yield on fairly farmed land of from 25 to 30 bushels, and with good cultivation of from 30 to 40 bushels per acre on good land. Oats grow extra fine, and yield from 40 to 70 bushels per acre. Timothy hay runs from $1\frac{1}{2}$ to $2\frac{1}{2}$ tons to the acre, and commands a ready sale at home, and, when baled, in Portland and San Francisco. Orchard and mesquite grass grow well and make fine pasture. Alsike, Alfalfa and red and white clover all thrive and make fine growths. Peas, beans, vetches or tares, all the leguminous plants are grown with great success wherever attempted. The introduction of these last-named crops into the farming of the county has hardly advanced beyond the experimental stage; but intelligent effort is invariably responded to by the fertile soil and genial climate of the Willamette Valley and foot-hills.

Apples, pears, plums, and prunes grow here in great abundance and perfection. A well-filled orchard is a necessary adjunct to every farm. The use of the fruit-drier is spreading fast, and the spectacle is not so common now as it was a few years ago, of hogs being turned into the orchard to eat thousands of bushels of luscious fruit, equal in all respects to the very finest

samples exposed for sale at the highest prices in the stores of the cities of the eastern and western States. Strawberries, blackberries, raspberries, currants, and gooseberries grow luxuriantly. The wild strawberries carpet the hillsides of the foot-hills, and are gathered by the bucketful by the children, generally ripening by the middle or third week in April.

Sheep and cattle do well throughout the section. There is room for great development of both numbers and quality as farming improves and diversified crops are produced, affording artificial feed to stock when natural pastures have passed.

Good improved farms in the eastern half of the county and situated in the Willamette Valley proper, vary in price from \$25 to \$50 an acre, according to advantages of position and nearness to towns and markets. In the foot-hills the price might be stated at from \$12.50 to \$25 an acre, varying with the value of the improvements of the farm and the quantity of cleared and cultivated land. In the hill districts and the more sparsely settled area of the coast country, land commands from \$4 to \$12.50 an acre, the price being governed very largely by accessibility to railroads, wagon road, or river. The fine farming land in King's Valley, in the northern part of the county, conforms in salable value pretty nearly to the best class of foot-hill farms above described.

The principal town of Benton is Corvallis, the county seat, which is on the Willamette river about eighty-five miles south of Portland, and the practical head of river navigation. The town is the cross-roads, on the west side of the Oregon & California and the Oregon Pacific railroads, and has a population of 1,527.

LINN COUNTY.

Linn county is bounded on the north by Marion county, on the east by the Cascade Mountains, on the south by Lane county, and on the west by Benton county. Linn is a very large county, being of an average width of forty miles north and south, by seventy miles in length east and west; but its eastern half is almost entirely in the Cascade Mountains, and there are only about 1,300 square miles of its western portion suited to general agriculture and fruit-raising.

The arable portion of the county is about evenly divided into prairie and rolling. The prairie is not a dead level but is slightly undulating, affording plenty of slope for good drainage to the Willamette river, which bounds the county on the west along its whole length. The soil of the prairie lands is a rich, dark, clayey loam, of the same general character as that of the whole of the Willamette Valley. The soil of the rolling lands is very much the same as that of Polk and Yamhill counties, already described. Although in appearance to those not acquainted with its character, it is not so rich as the lower lands, yet for all cereals it is equally productive, and many of our best farmers prefer it to the blacker soil of the prairies.

The settlements in Linn county were very early, and the community is now as thoroughly organized as any in the State. In Linn, as in various other valley counties reviewed before, there is no land open for settlement

excepting in the remoter foot-hills. Here there are large quantities of good land, for which only transportation is required to make it valuable. Within the past two or three years there have been many settlements in this region, and the people seem prosperous and satisfied with their choice. Those who establish themselves in these remote places are really very much nearer market than were the dwellers in the valley at the time of their settlement. A few adventurous men, attracted by the charms of a mountain life and wealth of timber, have found lodgment in the eastern district, far above their neighbors of the valley. If their situation as yet yields but little, they require but little and are content.

Most new-comers, however, prefer the advantages, business and social, of the valley, and if they have means, buy land in the lower country convenient to towns, markets, transportation, and schools. There is an abundance of land to be had from speculators and others at rates about equal to those above quoted for Marion county.

Linn county is particularly fortunate in the matter of transportation. Two railroads, besides the Willamette River, connect her with the general market at Portland, and the new Oregon Pacific gives her a competing line to a competing market at San Francisco, by way of the coasting steamers that ply between Yaquina Bay and that city. The extension of the Oregon Pacific line eastward across the county, now in progress, is carrying transportation to a large district heretofore isolated. It will make available the vast timber fields in the Cascade Mountains, heretofore valuable only in prospect.

Although Linn county is not considered a mining county, it is a fact well known that the mountains are rich in gold, silver, and base metals. Owing to their helpless isolation, mines discovered many years ago have lain undeveloped. The approach of the Oregon Pacific line, however, has awakened the spirit of enterprise, and during the past three months prospecting and development work was begun where it was left off fifteen years ago. Practical miners and experts who have explored the Santiam district are firm in their opinion that it is rich in minerals, and that it will prove, if not a veritable "bonanza," at least a productive and valuable district.

The chief town in Linn county is Albany, on the Willamette River. It has about 3,000 population and is a substantial and growing place. It has a fine water power which is applied to three large merchant flouring mills. There are also six other towns in Linn county—Scio, Brownsville, Lebanon, Harrisburg, Halsey, and Shedd's—each the center of quite a little trade, and ranging in population from 200 to 1,000 each.

LANE COUNTY.

Lane county is one of the largest counties in Western Oregon. It is bounded on the north by Benton and Linn counties, on the east by the Cascade Mountains, on the south by Douglass county, and on the west by the Pacific Ocean. The superficial area of the county is upwards of 4,000 square miles, and it contains every sort of country—valley, upland, foot-

hill, mountainous and coast. Exactly how much of Lane county is arable land, it is difficult to say, as the largest part of the county is as yet unoccupied, and of many districts the capabilities are as yet but a matter of surmise; but it is probable that fully two-thirds is subject to profitable cultivation. The prairie land and a portion of the foot-hill land is already occupied, and of these sections the character of the soil is the same as that of Linn county, and equally productive. The price of improved lands is somewhat lower than in Marion and Linn counties, and good farms may be had at reasonable rates. There is also a considerable quantity of Government land to be taken under the homestead and pre-emption law, and of railroad lands to be had at reasonable rates and long-term payments.

In fruits, Lane county produces as fine specimens as any part of the coast. Apples, pears, plums, prunes, cherries, and all small fruits are especially fine. Whenever attention is given to proper culture, the results have been entirely satisfactory. In vegetable products we do not think any section of the nation can excel, either in quantity per acre or quality of products. Indian corn is not raised to any considerable extent, but wheat, oats, rye, and barley yield as bountiful crops with as little expense of labor as the most favored countries in the world. Hop-growing has received considerable attention, and the products of Lane county rank among the best Pacific Coast hops. There are about 1,200 acres in the county, and thousands of acres suitable for hop culture, much of which will be planted. Thousands of acres of fine pasture lands lie along the foot-hills and each side of the valley, great sections of which are yet unoccupied.

Lane county is well supplied with transportation facilities. The central portion of the county is connected with Portland by two railroads and the Willamette River, which, at high stages of water, is navigable as far up as Eugene City. That part of the county to the west of the Coast Mountains and bordering on the ocean, is offered transportation by way of Siuslaw Bay, which affords a harbor for coasting vessels of light draught.

Eugene City is the principal town, located near the center of the county on the Oregon & California Railroad and the Willamette River, and near the junction of the three rivers that unite to form this beautiful stream. Its elevation is 476 feet above the sea level. It is the county seat, metropolis, and virtually the mercantile and trade center of a large county. It contains a population of 2,000. It is fortunately situated at the confluence of McKenzie, Middle and Coast rivers, thus concentrating the trade of a large country to this point. It is fortunate also in having no competing town within forty miles, so it has almost the exclusive trade of a territory reaching from the Cascade summits to the Pacific Ocean—120 miles—and from Corvallis to Oakland—90 miles. It is beautifully situated and finely laid out on the edge of a broad, rich prairie, adjacent to a ridge of low hills of great fertility. The streets are all at right angles and mostly ornamented with shade trees of the native Oregon maple. The first impression the stranger receives on entering the town is "plenty of room." The lots are large, being 80x160 feet and 66x160 feet, and many of the residences occupy two to four lots.

It is the seat of the Oregon State University and the educational center

of the Northwest. Its reputation for education and morality have attracted a class of wealthy and intelligent citizens.

DOUGLAS COUNTY.

Douglas county is the largest county in Western Oregon, and contains about 4,500 square miles of territory. It is bounded on the north by Lane county, on the east by the Cascade Mountains, on the south by Josephine and Jackson counties, and on the west by Coos county and the Pacific Ocean. This county might very properly be termed the valleys of the Umpqua River, as this river, with its two large forks, the North and South Umpqua rivers, and its innumerable small tributaries, drains the length and breadth of the land. Besides the Umpqua River, the Smith River, navigable for about twenty-five miles from its mouth, flows through the northwest portion of the county. Both these rivers, with their tributaries, afford an unlimited supply of water-power for manufacturing purposes, in whatever part of the county they may be located. While a very large part of the county is mountainous, there are many hundreds of thousands of acres of fine agricultural land. Small valleys, with streams of running water, are so numerous that almost every farmer may have a valley to himself.

The valleys are very free from timber, which is a special advantage to the farmer who comes into the county with little money, for he may at once begin to plant his seed without the laborious and time-losing work of clearing the land. The low hills are covered with oak, mandrone and other trees, which furnish inexhaustible supplies of fuel, and there are fir and pine enough scattered here and there, along the banks of streams and upon the hillsides, to supply any quantity of building and fencing material, while the mountains are covered, from base to peak, with tall firs and pines. In the mountains lying in the western part of the county, the fir and pine grow in very large proportions, and together with immense myrtle trees, are of inestimable value for the manufacturing purposes of the near future.

The population of this county is between 13,000 and 14,000, made up from every State in the Union; but very largely from the farming States of Illinois, Iowa and Ohio, and a great number have come from California, preferring the evenness of the climate here to the climate of California.

The soil varies from a rich, sandy loam on the river bottoms to a dark, rich loam, slightly mixed with sand, found on the high land, and a light, easily worked clay on the higher hillsides; in fact, this county will produce almost everything that grows from the ground. Grasses, both native and the cultivated in great variety, do well here; but wheat-raising is commanding a great deal of attention, as this grain seems to do admirably well in this county. The yield of wheat to the acre on bottom lands will average between 30 and 40 bushels, while on the higher land a fair average is about 20 bushels to the acre. Hops, corn and all kinds of green crops do well. In considering the productiveness of this land, it must be remembered that scarcely any fertilizing material has ever been put upon the land. For twenty-five or thirty years this land has been yielding crops unaided by fertilization. Fruits of all kinds do well in this county, especially prunes,

apples, pears, plums and grapes, and the berries grown about Roseburg bring the very highest price in the Portland market and are earlier than in any other part of the State.

A very important consideration to a farming community is the question of transportation. How are productions of the farm to be gotten to market for sale? The Oregon & California Railroad runs through the center of the county, affording producers ample opportunities of shipping their products to market. It is also very probable that other railroad facilities will be offered to the dwellers in this county at a very early day. The fact that the Umpqua River has the safest bar along the coast, from the Golden Gate to the Columbia, and that the mouth of the river offers very good harbor accommodations for coasting vessels, will not fail to attract the attention of persons engaged in railroad building.

Roseburg is the chief town of Douglas county. Its population is 1,472, and it is in all respects a prosperous town; it is on the line of the Oregon & California Railroad, and is located almost in the center of the county.

COOS COUNTY.

Coos county is bounded on the north and east by Douglas county, on the south by Curry county, and on the west by the Pacific Ocean. It lies on the western slope of the Coast Range, is for the most part mountainous, and in its general character it is very much the same as Tillamook county and other coast districts.

The agricultural district is limited to bottom lands along the Coquille River and various creeks, or to tide flat lands. The bottom lands, as a rule, have to be cleared of a dense growth of timber, and the tide flat lands have to be dyked before they are available for cultivation. The lands are very rich and highly productive, as soon as they are prepared for cultivation, but there is no great extent of them, and it is not at all probable that Coos will ever be classed as an agricultural county.

The principal wealth of Coos county is in its coal and timber. There are some seven or eight coal mines now opened and being worked, that have been operated for some years. The coal is of good quality, and the supply appears to be practically inexhaustible. The timber of this county is very fine. Besides the fir, cedar and other varieties common to the rest of the timber belt, and which are about the same in quality and yield per acre here as in other sections, Coos county has a resource peculiar to itself in the myrtle, a timber which is abundant on the Coquille River. It is particularly adapted for fine finishing and is very rare and valuable. The myrtle is found in other parts of Southwestern Oregon, but not, so far as we have been able to learn, in merchantable quantities.

Coos Bay is navigable for vessels of light draught engaged in the coasting trade; it affords about the only means of transportation which Coos county has. It is the seat of quite a trade in coal and lumber, and outside the Columbia River and the city of Portland, is the most frequented port on the coast of Oregon.

The more important of the several towns in Coos county are Marshfield, population 1,461, and Empire City, population 252, both on the bay and only a few miles apart. Empire City is much the older place, but of late years Marshfield, which is nearer the coal mines by a few miles, has rather taken the lead.

CURRY COUNTY.

Curry county, which lies by the ocean, directly south of Coos and west of Josephine, forms the southwest corner of Oregon. It extends upwards of seventy-five miles along the coast and is for the most part broken country, suitable for stock, dairying and the like, rather than the ordinary farming. Like Tillamook, Curry county is remote from any line of travel and is thinly peopled. Its industries are all of the primitive sort.

Because Curry county is lean in population and development, it should not be understood that it is without resources. It has, indeed, many and varied resources. Besides much land along the streams suitable for agriculture, it has a very fine upland range especially favorable for sheep. In its timber, especially its vast bodies of white cedar, it has a source of great future wealth. Port Orford will afford a good harbor for commerce when its tide shall turn to this neglected corner of the State.

JOSEPHINE COUNTY.

Josephine county lies to the east of Curry, south of Douglas, west of Jackson, and reaches the California line on the south. Its area is about 1,800 square miles. Its picturesque beauty is beyond description, and its area of tillable land is not as extensive as other portions of the State, although the valleys are beyond all question among the most fertile and productive in America. Rogue River flows through the county for forty miles and furnishes a fine valley of rich, sandy loam for about eighteen miles. The valley is from one to two miles wide for this distance, backed with high rolling hills covered with an excellent growth of timber. Rogue River is a beautiful stream, with an average width of about 300 feet, and a depth of three or four feet, with a fall of ten feet to the mile. The water is always clear and cold. Williams Creek and the Applegate River form a narrow valley of very rich land about thirty miles long. These valleys are already noted for a wonderful productiveness. Jump-off-Joe, Grave and Wolf creeks are streams of some importance, each forming small valleys of agricultural and grazing lands. The Illinois River, with its tributaries of Deer, Sucker and Althouse creeks, forms the valleys upon the western side of the county. There are upon each of these streams many acres of fine agricultural land, much of it still covered with brush. These streams in former years have been especially noted for their rich placer mines. In this vicinity there are still found good Government lands that will make happy homes for industrious and economical families.

The resources of Josephine county are very numerous. In agricultural products it produces a most remarkable variety. Grain of almost every

kind, fruits and vegetables of every description, not only grow but attain a size and flavor equal to those of any country. Stock of all kinds thrives well in connection with the farm, and there are several good ranges for small herds. Much wealth lies in its mineral and timber resources; for when these are fully developed in all their branches, and manufactories are established, there will be a large home market for nearly all the farm products. This county, with its fertile bottoms of warm, sandy loam soil along the streams, with its warm hillsides of dry, red land and cool granite benches, covered with immense pine forests, together with its sheltered situation, and consequent immunity from winds and other storms, all conduce to make it well adapted to the raising of tender fruits and vegetables, as well as the more common and hardier kinds. No country in the world excels it for apples, pears, peaches, plums, apricots, nectarines and grapes, while all the varieties of berries possible in this latitude are produced in abundance and of the finest flavor. Fruit trees are generally healthy, and usually begin bearing at two or three years old from the bud or graft. Corn and cane grow well on the sandy soil along the streams. Corn matures hard and sound, and will keep through the winter in an ordinary crib.

There is considerable Government and railroad land in this county, mostly rolling hills and small valleys, covered with timber and brush. Small tracts of good Government land can be found by taking plenty of time to hunt it out. Better land can be bought for small sums, and many places with improvements are for sale cheap by persons who have not perfected a title.

This county is connected with Portland by the Oregon & California Railroad, which runs through its northeastern portion and affords ample facilities for transporting its products to market.

The principal town of Josephine county is Grant's Pass, a flourishing town of 1,432 people. It has a sash and door mill, which draws its supply of timber from the cedar and sugar-pine forests near at hand.

JACKSON COUNTY.

Jackson county is bounded on the north by Douglas county, on the east by the Cascade Mountains, on the south by California, and on the west by Josephine county, and has an area of about 1,600,000 acres. Of this about 275,000 acres are now in cultivation, and there are about as many more subject to profitable use for farming and fruit culture, the remainder being about evenly divided into grazing and timber lands.

The arable land comprises the valley and table and rolling hill lands. The grazing comprises the lands too arid and hills too steep for general cultivation, which are generally sparsely covered with scattering timber. The timber land comprises the slopes of the mountains, the more rugged hills and canons, and some lands along the water-courses.

This county takes in almost completely the large and fruitful valley of the Rogue River, with the converging uplands on every side and a large area of rolling and mountainous country. The great feature of the county is the valley, which is about sixty miles long, varying in width from two

to twenty miles. In one sense this valley is not one valley, but a succession of valleys, as it is broken by rolling and hill lands into what might be termed several separate valleys. This condition of things is liable to lead one unacquainted with the country to erroneous conclusions, and it is well for the intending settler to take time to examine the country thoroughly before coming to a conclusion. The climate of Jackson county approaches, without reaching, the semi-tropical, and is highly favorable to productions which, in the colder regions, need the most careful nursing. The country is especially adapted to fruit.

Until three years ago, the county was wholly destitute of transportation excepting such as was afforded by wagons on a mountain road, and this fact will explain its slow development. Since the extension of the Oregon & California road in 1884, giving it a connection with the general market at Portland, progress has been wonderful. Population has greatly increased, and the area of cultivated land has been largely extended. In orcharding especially there has been marked progress, hundreds of thousands of orchard trees having been planted within the past twelve months. The range of production as shown by the census, includes wool, wheat, oats, barley, rye, corn, hay, dairy products, tobacco, hops, fruits, lumber, and gold. Mining is an important industry in Jackson county.

Jacksonville and Ashland are the chief towns of the county. The former is the county seat. The latter has a fine water-power which is practically applied in a woolen mill, flour mill and sash factory. Medford, a town created by the railroad seven miles from Jacksonville has made great progress, and bids fair to rival the older towns.

EASTERN OREGON

Comprises all that part of the State situate east of the Cascade Mountains, and includes the counties of Wasco, Gilliam, Morrow, Umatilla, Union, Wallowa, Baker, Malheur, Grant, Crook, Lake, and Klamath.

WASCO COUNTY.

Wasco county is bounded on the north by the Columbia River, on the east by Gilliam county, on the south by Crook, and on the west by the Cascade Mountains. It contains about 3,600 square miles, and is made up of many sorts of country. Its western boundary in its entire length north and south being the comb of the Cascade Range, it takes in the entire eastern slope of those mountains, and there is a large mountainous district heavily timbered. There is also a low-lying river district, but the main body of the county is upland and more or less rolling. To the east of the slope of the Cascade Mountains, there is little if any timber, and the proportion of land ready for the plow without clearing is greater than for counties west of the mountains. The country is somewhat broken, but it is estimated that 70 per cent of the land of the county is arable, well suited to general agriculture, and very rich and productive.

The everlasting snows of Mount Hood furnish a constant, never-failing volume of water in Des Chutes river, and its tributaries, which run northerly across the entire western portion of the county, and pour their clear, cool waters into the Columbia at Fultonville, fifteen miles easterly from The Dalles. The west and northwest water-shed of the Blue Mountains sends its surplus waters through the John Day river and its many branches into the Columbia, twenty miles above the mouth of the Des Chutes. Thus the territory of the county, which is about sixty miles square, has the Columbia on the north, and is divided into three parts by the Des Chutes and John Day waters from the south. The soil between these rivers and along the whole length of their sides up to the timber on the mountain slopes, is of unsurpassed richness and suitable for vegetable growth and the production of grain, requiring only man's instrumentality in working and exposing its top by the plow and letting in the sun and air to prepare it for his uses.

From the earliest settlement of the county, until recently, that region has been largely devoted to stock-raising. As the population increased the ranges were occupied, and it became necessary to sell off the cattle. Very naturally the attention of the people was directed to agriculture, which formerly had been carried on only to the extent of supplying local consumptive demands. There was serious question as to the capacity of the county for general farming—not with reference to the richness of the soil, for that was unquestioned, but it was feared that the long seasons of dry weather would be fatal to general crops. The experiment, however, has been tried, and the result is highly satisfactory. Wheat, which is quite generally grown, is a splendid crop. The yield is reported to average from 22 to 26 bushels to the acre. Many fields, particularly well cultivated, yielded 30 bushels or more to the acre; others, where farming methods were poor, did not produce more than 20 bushels; but the average was fully up to expectations, and all other cereals have done proportionately well.

There is a large amount of unoccupied land in this county, more or less remote, some still in the hands of the Government, but much of it in the hands of speculators, from whom it may be had at prices ranging from \$5 per acre upward.

The only means of transportation which this county has at present, is the Columbia river and the railroad along the river at its northern border.

The chief town of Wasco county is The Dalles, a river port and general business center of 3,000 people or upward. The Dalles is one of the oldest towns in Oregon. It is substantially built, with stores of brick or stone, business buildings, and many fine residences.

GILLIAM COUNTY.

Gilliam county is bounded on the north by the Columbia River, on the east by Morrow and Grant counties, on the south by Crook, and on the west by Wasco county. The John Day River flows along the county's

south and west boundary, and the country is watered by this stream and its tributaries.

The county is in the form of a wedge about twenty-five by seventy miles ranging north and south. It is for the most part a heavily rolling upland, through which there are several streams with narrow valleys or "bottoms." The earliest settlements were in these bottoms, and it was supposed that the higher country was fit only for grazing; but within the past five years settlement has spread over the hills, which have been found to be highly productive, yielding wheat, and, in fact, a general range of agricultural products. There is very little timber in Gilliam county, except in the southern part, and the lack of it is the chief difficulty with the farmers. The settlements here are comparatively new, and much good land remains unoccupied. During the past year a stream of immigration has been pouring in.

The southern portion of this county differs somewhat from the general range of the "east of the mountains" country. In place of the prevailing rock being basalt, we find here sandstone, conglomerates, shales and every other formation belonging to the carboniferous era. A few miles from the town of Fossil, immense beds of coal have already been discovered,—an article that will be of great advantage to the country and these immense treeless plains, to say nothing of all the industries that follow in the wake of great coal discoveries. The coal is a splendid gas and coke producer, and the beds bid fair to be second to none on the Pacific Coast. Over a dozen veins have been located and prospected with favorable results in every instance, and great developments may be looked for as soon as capital takes hold of them.

A spur of the Blue Mountains projects into the southeastern portion of the county. Along the foot-hills of this spur are many small, open prairies, containing from twenty to eighty acres of pure soil and surrounded by excellent pine and fir timber, with good pastures and countless springs of the purest water. These small locations extend for miles, and are very desirable for settlers desiring small farms with ample stock range.

There is in this county, not far from the town of Fossil, a very remarkable deposit of fossils from which the town has taken its name. This district has received the name of "The Potato Patch," probably because it is as far removed from being a potato patch in fact as could well be possible. In it have been found well-preserved remains of the mastodon, elephant, rhinoceros, and other extinct animals, offering a curious record of the prehistoric times of this section of the country.

The chief town of Gilliam county is Arlington, with a population of 356. Arlington is a new town, with wonderful energy manifest in its rapid, continuous growth in the past three years. It is the depot of a large wool business, and no place in Oregon is more prosperous at this time. The only means of transportation which this county at present has are the Columbia River and the railroad along the river. Arlington is on the railroad and is the chief depot of the county.

MORROW COUNTY.

Morrow county is bounded on the north by Columbia River, on the east by Umatilla, south by Grant, and west by Gilliam county. This county is about 35 miles wide, east and west, by 75 miles long, north and south. In its general character and development, it is almost the counterpart of Gilliam county. It is tolerably well watered by creeks and springs, but much of the best farming land is without running water. Water can be obtained in wells at varying depths of from 15 to 25 feet. There is some timber along the banks of the creeks, but most of the wood has to be hauled from the forests of the Blue Mountains.

There is still a large area of land in this county in the hands of the Government, and subject to entry. Good claims may be bought at prices ranging from \$3 per acre upward, depending somewhat upon the character of the improvements.

At the present time this county has no means of transportation save the Columbia River and the railroad along the river on its northern boundary; but a branch of the railroad is now under construction to Heppner, its county seat.

Arlington, in Gilliam county, is the chief shipping point for Morrow county, but it has an important town in Heppner, a place of 675 people. Heppner has an ambitious rival in Lexington, a comparatively new town, with a population of 300 or 400.

UMATILLA COUNTY.

Umatilla county is bounded on the north in part by the Columbia River and in part by the State of Washington, east by Union, south by Grant, and west by Morrow county, and has an area of about 3,100 square miles. About one-third of this, in the southern part of the county, is occupied by the Blue Mountains and their spurs, and is not arable, though equally valuable for the timber with which it is covered. The other two-thirds of the county is in the main arable land, though it is broken here and there by barren bluffs, steep hillsides, or patches of waste land, and immediately along the Columbia River by a belt of sand six to ten miles in average width. The general character of the arable portion of the county is that of heavily rolling prairie.

The principal occupations are farming, stock-raising, wool-growing and dairying, though there are rich mines in the mountain districts of this county which are no mean factor in its general wealth and prosperity. Formerly, when the country was sparsely settled, stock and wool-raising were about the only industries. The plains that are now largely converted into grain fields were then covered with a luxuriant growth of bunch-grass, and this was the stockman's paradise. It was believed that the land was not adapted to agriculture, and for many years any suggestion of grain-growing was received with incredulity and scorn. Gradually, however, the plow has advanced, beginning in the northeastern portion of the county, and pushing its way gradually but persistently southward and westward,

until the area left to the flocks and herds is greatly diminished. Greatly to the surprise of the old settlers, the uplands were found far more prolific than the little creek bottoms, and the higher the land, where the depth of soil is sufficient, the greater is the fertility.

The average annual yield of wheat as reported in the State census is 26 bushels per acre. This includes spring and volunteer crops. Many fields of properly sown fall grain yield from 30 to 45 bushels an acre. All kinds of fruits, not strictly tropical, can be successfully cultivated. Apples, plums, prunes and berries are especially prolific and of fine quality. Peaches and grapes can also be grown in some portions of the county in the warmer valleys. All kinds of vegetables grow in abundance, and of the best quality.

There are some very good land still in the hands of the Government and subject to entry, though this is remote from the railroads and larger settlements. Good lands may be had from owners of large tracts at reasonable rates, varying from \$5 up, owing to the character of the land and improvements.

The county has been and is being well supplied with railroads. The Oregon Railway & Navigation Company's line extends across most of the northern edge of the county along the Columbia River, and connects the county with the general market at Portland; a branch of its line extends from Umatilla Junction via Umatilla River across the Blue Mountains, connecting with the Union Pacific, and there is a branch between Pendleton and Walla Walla, Wash., a distance of forty miles, through the heart of the agricultural region.

Pendleton, the county seat and principal town, situated on the Umatilla River and the railroad, is the terminus of the Walla Walla branch railroad, and is a prosperous town of about 2,500 inhabitants. Weston, Centerville, and Milton in the eastern part of the county, Adams, fourteen miles from Pendleton, on Wild Horse Creek, and Echo on the Umatilla, twenty miles north of Pendleton, are the other principal towns. Good church and school facilities are offered in almost every settlement.

UNION COUNTY.

Union county is bounded on the north, in part by the State of Washington, and in part by Wallowa county, which also bounds it in part on the east, the other part of its eastern boundary being Snake River (the eastern boundary of Oregon); Baker county is its southern, and Umatilla county its northern boundary.

Union county contains 1,958,400 acres, of which 1,497,500 acres are surveyed lands. The unsurveyed portion is mostly mountains, valuable for timber, for pasturage and in many places rich in minerals. The largest body of agricultural land is the Grande Ronde Valley, which contains 300,000 acres of as rich, level agricultural land as there is in the West. This is all prairie land and of the best. The Grande Ronde River flows through the valley from the southwest to the northeast. Numerous small streams start from ever-flowing springs in the hills which surround the valley, and flow into the Grande Ronde. Pure water is everywhere abundant.

Union county has mines of gold, silver, copper and galena, which annually produce thousands, and give promise of an increased production of many years to come. The Pine, Eagle, Powder River, Clove Creek, Starkey Prairie and Indian valleys are all located in Union county. Each contains a considerable body of agricultural land, and has the same general character as the Grande Ronde Valley. The hills and mountains bordering the valleys are covered with a fine growth of timber and grass, timber at no point being many miles distant from the agricultural lands. Many small valleys are to be found among the mountains and foot-hills, in which the soil is very fertile. These valleys are especially adapted for small stock and dairy ranchers. There is yet some Government land to be found in these localities. Pure water can be found everywhere. Rainfall is sufficient to mature crops; such a thing as a failure has never been known. On the other hand there are no long, rainy seasons as in some portions of the West.

The soil is generally alluvial and sandy loam, from three to twenty feet in depth. The sub-soil is usually gravel. The soil is rich, and produces wheat, oats, barley, rye, hops, flax and hemp; hay—timothy and clover and the native wild grass; vegetables—potatoes, cabbage, beets, turnips, cucumbers, peas, beans, and others of the like; berries—currants, gooseberries, strawberries, raspberries, blackberries and wild huckleberries—all do well; fruits—apples, pears, plums, cherries. Peaches do fairly in some localities. Large quantities of hay are shipped to the counties further west. From 20 to 60 bushels of wheat, 40 to 80 bushels of oats, and 40 to 90 bushels of barley are raised per acre.

The stock interests occupy the attention of a considerable number and will continue to do so.

The mild winters, extensive ranges, productive grain and hay lands, absence of contagious diseases, pure water everywhere, make this now, as it always will be, a choice location for stock. As fine horses as can be found on the Pacific Coast are raised here, also cattle, sheep, and hogs. Fattening cattle for shipment is a growing business.

Dairy interests are assuming importance. The advantages for this line of business are unexcelled.

The land in Grande Ronde Valley was principally State land, and has been all sold. Although these lands have been sold, the proportion under cultivation will not exceed one-half. Considerable is owned in tracts of 320 to 1,000 acres, and nearly every business man in the towns owns a 320-acre tract. Many tracts owned by people living in town are improved and can be purchased at very reasonable rates. Those living on farms are as a rule satisfied. Little land is offered for sale by this last class, except in cases where they have more land than can be conveniently handled. Prices for improved valley lands will range from \$10 to \$25 per acre—average \$15 to \$18.50 per acre. Unimproved lands are from \$6 to \$15 per acre. These prices are for lands in Grande Ronde Valley, deeded and with perfect title. Land in foot-hills and small valleys is selling for \$6 to \$12 for improved, and \$3 to \$7 per acre for unimproved.

The railroad of the Oregon Railway & Navigation Company passes through Union county, and the entire length of the Grande Ronde Valley,

in easy reach of the greater portion of the agricultural part of the county, and connecting it with the general market at Portland.

Union county has two considerable towns, besides rural villages. The county seat, at the eastern end of the Grande Ronde Valley, is called Union, and has a population of 604. La Grande, at the western end of the valley, is the larger town, having a population of 2,583.

WALLOWA COUNTY.

Wallowa county is bounded on the north by Washington, on the east by the Snake River (the eastern boundary line of Oregon at this place), and on the south and west by Union county. The greater part of the county is mountainous. It has some fine agricultural lands, but no large unbroken area. The agricultural lands are for the most part situated in three valleys, known as the upper, middle, and lower Wallowa valleys. The upper valley is separated from the middle valley by a range of hills, is comparatively level, and about six miles wide by fifteen long. The middle valley is about nine miles long by seven wide, and is of a heavily rolling character. The lower valley is small, being but about five miles long by three wide. The soil of all these valleys is rich and productive, and produces fine grains, grasses, and fruits, and all are well watered. Timber is in easy reach from all sections, and the foot-hills surrounding the valleys offer much good agricultural and an abundance of grazing lands. The general elevation of these valleys is about 4,000 feet above the sea, and as a consequence the winters are somewhat colder than those of the surrounding country of less elevation, but they do not see the severity of those of the country east of the Rocky Mountains.

This section is as yet without any means of transportation by water or rail, the Snake River not being navigable so far up; but it will doubtless, in time, be penetrated by a branch of the road of the Oregon Railway and Navigation Company.

The mountain ranges of this county are rich in minerals and building stones. Gold mining has long been prosecuted successfully, and recent silver and lead discoveries are very promising.

The principal town is Joseph, the county seat, located in the southern part of the upper valley. It has churches, schools, flouring mills, saw-mills, and mercantile houses, all doing a good business; the population of the town is about 300.

BAKER COUNTY.

Baker county is bounded on the north by Union county, on the east by Snake river (here the eastern boundary of Oregon), south by Malheur, and west by Grant county. This county is situated in the Blue Mountains, and is throughout of a very considerable elevation, the Powder River Valley, the lowest part of the county, being at an elevation of about 3,000 feet. The county is for the most part mountainous, and what land there is sufficiently level to be devoted to agriculture, is limited to the Powder river and some tributary small valleys.

The Powder River Valley is about twenty miles long by sixteen wide, is well settled and the center of the greatest population of the county. Surrounded with timbered mountains on all sides, its agricultural lands slope gently towards a central line or point. It has great beauty and attractiveness. The Powder river, proper, flows near the eastern margin of the valley, receiving the waters of Wolf creek, North Powder, Muddy, Rock and Pine creeks, which, rising in the mountain range, flow from west to east across the valley, affording abundant water. At the head of each of the streams named, are saw-mills, affording lumber at low rates and in close proximity to all parts of the valley. The rarity and purity of the atmosphere of this valley, caused by its elevation, make it exceedingly favorable to those suffering from lung troubles, while the surrounding mountains lend it a charm which makes it a very desirable place of residence.

Agriculture, while to a certain extent limited by the general elevation of the country, is by no means prohibited by it. The several grains are produced in abundance by a soil everywhere potential. Vegetables in general variety and excellence are produced as in Western Oregon. Owing to the severe winter frosts, fruit is not a common product, although orchards prosper fairly in certain protected localities. The country declines toward Snake river, which forms the border of the east, and in its valley, or cañon protected by towering hills, fruit trees yield remarkably well. This narrow strip is given up almost wholly to fruit; but there is not enough of it to supply the demand of Baker county, and the main source of supply is the lower country west of the mountains. Stock-raising is, or has been, a more important business in Baker county than agriculture, but with the growth of population the positions of these industries is being reversed.

The leading, characteristic business of the country is gold mining. Baker county was settled originally by miners, and the mining industry and the mining spirit have always dominated the country. What the annual gold product of Baker county is, it is impossible to find out. Much of the gold is carried out secretly, and probably not one-half of the product leaves a record. But it is safe to say that the whole product is at least \$2,000,000 per year. The mines are of all kinds,—placer, hydraulic, and quartz. The mineral country is very large,—so large, in fact, that a circle of 100 miles in diameter, with Baker City as a center would not include it all.

Through the center of the county runs the Oregon Railway & Navigation Company's line of railway, a portion of the new overland route via "Oregon Short Line."

The chief town of Baker county is Baker City, which is beautifully situated in the heart of the Powder River Valley. It is a thoroughly substantial town of 2,604 people, and is destined, as the center of what is probably the most extensive gold district in the world, to be a very wealthy place.

MALHEUR COUNTY.

Malheur county is bounded on the north by Baker county, on the east by the eastern line of the State, on the south by the southern line of the State, and on the west by Grant county. It is for the most part a high and dry county, and is at the present time used mostly for grazing. The farming settlements are at the present time very limited, and are confined to the valley along the Malheur river and the Jordan valley, watered by a tributary of the Owyhee river of that name. The settlements in these valleys are prosperous and growing, and the residents declare the lands to be very fertile, yielding abundant crops, but general agriculture is not yet widely enough spread to warrant any positive statement as to the adaptability of the county at large to that purpose.

The stock ranges of the Malheur and Owyhee River districts are among the best in the West. The climate is in every way suited to the industry. But little rain falls in summer, and not much snow in winter. Cattle, sheep, and horses have grazed in some of these valleys for fifteen years without other food than that obtained by them on the ranges, and have never suffered serious loss. Generally, they are fat and in good condition in the spring; but occasionally they suffer some deterioration. As on all ranges, a small percentage die every winter from various causes. Running water is abundant in the streams, fed by the living springs and melting snows of the mountains, and stock does not suffer for lack of water during the driest season.

There is an abundance of unoccupied land in this county, to be had of the Government by homestead or pre-emption, and it is possible that it will yet afford homes to a large and prosperous population. There is no town of any importance in the county.

The only means of transportation which this county at present has, is the road of the Oregon Short Line, forming, in connection with the line of the Oregon Railway & Navigation Company, a through line to Portland, and offering facilities to its northern part. But this line is situated in Idaho to the other side of the Snake River, and the river has to be crossed to reach it. The line of the O. R. & N. Co. may also be reached by going northward into Baker county.

GRANT COUNTY.

Grant county is bounded on the north by Gilliam, Morrow, and Umatilla counties, on the east by Baker and Malheur counties, on the south by the southern boundary of the State, and on the west by Crook and Lake counties. It covers an area of about 18,000 square miles, and is the largest county of the State, as it is agriculturally one of the least developed.

Exactly what the possibilities of this county in the way of general farming are, cannot at this time be stated with any degree of accuracy. The great industries of this county at the present time are stock-raising and mining, and the lands of the county are almost exclusively devoted to

range. General farming is, however, carried on to some extent in some of the small valleys and along the foot-hills, and both soil and climate appear to be adapted to the raising of all the hardier grains, fruits, and vegetables. Wheat, oats, barley, and hay are the leading crops. The nights are too cool for corn to do well, though corn is raised in the warmer valleys. Apples, pears, plums, cherries, and berries of all kinds thrive, but peaches cannot be depended upon, yet good peaches are raised in certain portions of the county, where the topography favors them and gives them shelter from extreme cold. Except in the southern portion, the county is well watered by numerous large and small streams and springs of pure water. The northern portion is well timbered, while the southern is nearly barren of trees. The leading varieties of timber are pine, fir, and tamarack.

There is little land, except on the lower John Day and its tributaries, that is less than three thousand feet above the sea level. Considering the altitude and elevation, one might expect a climate of great severity; but such is not the case. The mercury falls sometimes quite low, but these cold snaps are infrequent and of short duration. Among the mountains, of course, the climate is subject to sudden changes. Snow rarely falls to any great depth, except in the mountains, and below the timber line seldom remains on the ground more than a few days. Rain seldom falls from June to September, except in sudden thunder showers, that sometimes occur with great fury. Although the summers are warm, the heat is not uncomfortable, owing to the dryness and purity of the atmosphere. The nights are nearly always cool.

Grant county has no transportation facilities by water or rail at the present time. The nearest line of railroad is that of the Oregon Railway & Navigation Company, passing through Baker county. The proposed line of the Oregon Pacific will pass through the county east and west at about the center.

The county seat of the county is Cañon City, a mountain town of 304 population, near the northern end of the county. John Day and Prairie City are also thriving and growing towns.

There is still an abundance of Government land to be had in this county.

CROOK COUNTY.

Crook county is bounded on the north by Wasco and Gilliam counties, on the east by Grant, on the south by Lake and Klamath counties and on the west by the Cascade Mountains, and it covers an area of about 8,000 square miles. The western boundary of the county being the comb of the Cascade Mountains, it embraces a considerable mountain district, but the greater part of its area is arable land, though owing to its lack of transportation facilities, but very little of it is at the present time under cultivation, and by far the greater part of it is as yet unoccupied.

The county is well watered by the Des Chutes and its tributary, Crooked river; but it has neither navigable river nor railroad nearer than

150 miles of its chief town. This lack of transportation facilities has limited general farming to what was demanded for local supply, and caused the lands to be used very largely for grazing of cattle, sheep, and horses, wool being the only product that would bear transportation, and stock being the only crop which could be made to transport itself to market. Enough farming has been done, however, to fully demonstrate the adaptability of the greater part of the country thereto. Outside the mountain districts the country is rolling in character, and generally free from timber.

The proposed line of the Oregon Pacific Railroad Company traverses this county from southeast to northwest, and it is expected that it will in a few years afford the needed transportation facilities, and open the country to general settlement.

There is still a considerable amount of the desirable lands of this county in the hands of the Government, to be had under its land laws.

Prineville is the chief town, and is the trade center and point of supply. It is a thriving place situated on the Ochoco river, near its junction with Crooked River, and has 460 inhabitants.

LAKE COUNTY.

Lake county is bounded on the north by Crook county, on the east by Grant, on the south by the southern California boundary of the State, and on the west by Klamath county. This county is best reached from Portland by way of the Oregon & California Railroad to Ashland, in Jackson county, and thence by wagon road across the Cascade Mountains. As its name implies, it is a region of lakes, many of them of considerable size. The county has about 7,000 square miles of territory. The soil is of a rich sandy and loamy nature. The ranges are wide and grasses plentiful. The climate is pleasant and beautiful in summer; winters are short and sharp, but seldom severe.

Formerly the chief industry was stock-raising. At present more attention is being paid to farming, all the necessary grain for feed or the manufacture of flour is easily produced; in fact, more is raised than the home market will justify on account of there being no successful means of transportation to other markets. On the margin of the numerous lakes there are well-improved farms annually producing crops of wheat, rye, timothy, vegetables, and fruits of every kind, including strawberries, raspberries, etc., together with all the varieties of flowers and tender plants produced in the Willamette Valley or the northern portion of California. The timber is of pine, juniper, and mahogany, excellent both for lumber and fuel. There are four steam saw-mills, all in active operation.

Irrigation appears to be a necessity no longer in any part of this county, since the highest and driest tracts of sage-brush lands are being converted into productive farms by the simple process of removing the sage.

The valleys comprising the county of Lake are known as Silver Lake, Summer Lake, Chewaucan, Crooked Creek, Goose Lake, Drews and Warner, all of which are fertile and inhabited by industrious stock-raisers

and farmers. Title to Government land can be acquired in the county under the various public land laws of the United States, the land office at Lakeview affording especial facilities to settlers in the way of information as to the unoccupied lands.

Lakeview and Paisley are the only towns of importance in the county. Lakeview is a business center for a large extent of country; has a good newspaper, schools, churches, business houses, and other good and enterprising features; is the county seat, the Land Office being located there, and has between 700 and 800 inhabitants. It is situated about five miles to the north of Goose Lake, at the foot-hills of the mountains on the eastern side of Goose Lake Valley. It is the commercial center of the county. There are four different mail routes leading from there, viz: to Redding, Ashland, Silver Lake, and Harney Valley.

Paisley is situated on the Chewaucan River, forty miles north of Lakeview, is a prosperous village of perhaps 150 inhabitants, representing every branch of industry the county affords, having unbounded wood and water facilities.

For rich agricultural lands, fine meadows, garden spots, grazing and stock interests, Lake is the peer of any county in the State, and no better argument is needed in its behalf than the wealth of its citizens. This county is at present wholly without transportation facilities, and stock, its only article of export, are driven across the mountains to the railroad and thence shipped to Portland, or driven the entire distance. The proposed line of the Oregon Pacific will cross the northeast corner of the county.

KLAMATH COUNTY.

Klamath county is bounded on the north by Crook county, and on the east by Lake, on the south by the southern boundary of the State, and on the west by the Cascade Mountains. The county has a general elevation of about 2,000 feet, and contains about 5,400 square miles of territory, of which about 350,000 acres are arable, 500,000 grazing, and the balance, mountain, timber, lake, marsh, and waste lands. The county is, as a rule, well watered by several small rivers with their tributaries, and it has two lakes, the upper and lower Klamath.

The distinguishing features of the county are its high mountains, its beautiful lakes, rivers, valleys, prairie land, timber land, abundant springs (both cold and hot), game, fish, and fine scenery. The agricultural districts are the Klamath Basin, the valleys of Lost River, Tule Lake, and Sprague River, Poe, and Langell. A notable feature of the county is the large bodies of swamp and marsh lands that it contains.

The soil is generally a silicious or sandy loam, very fertile and easy to work, there being little or no sod to rot, no timber or stumps to remove. In the valleys, the first plowing brings the land into perfect cultivation and, in fact, crops have been successfully grown upon land

in this county which had never been plowed. It is one of the peculiarities of this county that while the valleys are comparatively free from timber and stone, the surrounding mountains are, as a rule, covered with a variety of excellent timber, easily accessible, and an abundance of stone suitable for building purposes; thus it will be seen that there are to be found all the elements necessary to the make-up of a future wealthy and prosperous county; viz: timber, stone, water and good soil.

What agricultural land there is in this county is exceedingly rich, and yields of grain are obtained that appear almost phenomenal—as much as 130 bushels of barley and over 100 bushels of oats to the acre having been realized, while 50 bushels of wheat to the acre have been threshed.

This county is without any present transportation facilities by rail or water, nor is there any immediate prospect of any being furnished it in the near future; and like Lake county, its only present article of export is stock, which is driven to market. The best route to reach this county is by rail from Portland to Ashland, in Jackson county, and thence to cross the Cascade Mountains by way of wagon road.

Linkville, the county seat of the county, is its only town of any importance. It has a population of 364, and is about 62 miles distant from Ashland.

There is still a large amount of unoccupied Government land in this county, much of it arable, but the larger part of it suitable for grazing only.

HARNEY COUNTY.

Harney county has been organized but a short time, and is situated in the southeast part of the State, bordering on Nevada. It equals the State of Maryland in size, and is, at present, wholly given over to stock-raising. Like the rest of Eastern Oregon, it is of considerable elevation, but the climate is warm and healthful, and where grain or vegetables have been grown they have prospered. In the center of the county are large lakes, and into these flow various rivers from the mountains. It is colder in Harney than in Western Oregon, but severe cold is seldom felt, and old settlers think the prospects for general farming as good as in the Mississippi Valley. The county, however, is absolutely devoid of transportation facilities, and its development must wait on them.

Harney, the county seat, population 240, is located in the northeast of the county. It is beautifully situated, though merely a hamlet where the ranchmen of this extensive territory occasionally meet for business or pleasure.

SHERMAN COUNTY

Was organized in February, 1889, and contains 320,000 acres. Nearly all this is rolling agricultural land of the finest kind, which produces wheat,

oats, corn, and fruits of every description, except olives, bananas, and other sub-tropical fruits. The land is mostly devoid of wood, and as it lies in the fork of the John Day and Columbia, convenient to railroad and navigation, it has all been settled and most of it put into cultivation. It is one of the smallest counties in the State, but agriculturally one of the richest. All its towns are new and growing. The assessments for Sherman county were not compiled in time for publication.

Wasco, the county seat, took its name from Wasco county, of which it was formerly a part. Wasco signifies the "land of the grass," an appellation which well befits the rich county to which it belongs; but it is hardly a fair cognomen for the busy and enterprising little town that wears the honor of county seat in Sherman county.

MISCELLANEOUS.

Living expenses in the cities and towns of Oregon, including servant hire, are about 10 per cent higher than in the East. Of course, the productions of Oregon, which are consumed at home, are as cheap as elsewhere. Hotel rates in the towns of the interior average \$1 per day for transient customers; in the cities, board and lodging by the week, \$5 to \$12 at the hotels, about \$4 at private houses. House rents in the small towns are quite low. Good five-room houses, with some yard attached, can be had for from \$5 to \$10 per month. Farm hands command about \$25 per month, by the year's hire; harvest hands, \$1.75 to \$2.50 per day; house servants, about \$20 per month. Common laborers, \$1.75 to \$2.00 per day; foremen of gangs, from \$75 to \$100 per month; blacksmiths, \$2.50 to \$4 per day; carpenters, \$3.50; carpenters' assistants, \$1.75 to \$2. In shops, machinists get from \$3.50 to \$4 per day; boiler makers, \$4, their helpers, \$2 to \$2.50. Harness makers in Portland, \$2 to \$3 per day; saddle makers get \$3 to \$5 per day for piece-work. Cabinet-making is extensively carried on, good workmen receiving steady employment, and getting \$2.50 to \$3.50 per day. The Portland wagon and carriage makers earn \$2.50 to \$3; blacksmiths, on wagon and carriage work, \$2.50 to \$4 per day; bricklayers and stonemasons, \$4 per day. The woolen mills at Oregon City pay as follows: Common labor, \$1.25 to \$1.50; Chinese, 90 cents to \$1; weavers average \$1.75; spinners, \$1.25 to \$1.50, being generally expert children and youth. House servants are in demand, and owing to the absence of white help, Chinese are freely employed at \$3 to \$5 a week, very good ones earning as much as \$25 to \$30 per month. Servant girls earn good wages, and are preferred when they can be had.

There is not more lack here than in other parts of the United States for lawyers, doctors, and clergymen. Persons belonging to these professions will find it difficult to make their way, but even in these callings success may be achieved by capable men. In mercantile pursuits, the opening is good for men of enterprise and capital, but the chances for more clerks are not the best.

For the past few years wheat in bulk at Portland has ranged at from \$1 to \$1.60 per 100 pounds; oats, 45 to 60 cents; potatoes, 40 to 75 cts.; flax-

seed, \$1 to \$2; onions, \$1 per bushel; best quality flour, \$4 to \$5 per barrel. Good farm horses cost about \$100 each; oxen, \$125 per yoke; good average milch cows, \$30 each; sheep, \$1.25 to \$2.50 per head; wool, common graded, 15 to 20 cents per pound; beef on the hoof is worth 3 to 4 cts.; butchered beef, 5 to 7½ cents; choice cuts, 10 to 14 cts.; chickens, per dozen, \$3 to \$5; tame ducks, per pair, \$1.50; geese, per pair, \$3; turkeys, per pair, \$3; wild ducks, per pair, 50 to 75 cents; wild geese, per pair, \$1.50; pheasants, per pair, 50 cts.; grouse, per pair, 75 cts.; venison, 10 to 12 cts.

The assessment for taxation under the present law is on the basis of about 33 per cent of the full valuation of property.

Farmers with limited capital who are uneasy about their future and that of their children, and who are prepared to emigrate, should consider the advantages which Oregon affords, irrespective of the climate, which must be attractive to all. They should have at least sufficient capital to be independent for twelve months. It is often best for the father to go out and pave the way for the remainder of his family.

ANSWERS TO QUESTIONS.

The Oregon Board of Immigration present the following admirable digest regarding Oregon and Washington:—

GOVERNMENT LAND of good quality may be found in every county of the State of Oregon except Multnomah, and in every county of Washington. The proper persons to apply to for information are the registers of the United States Land Offices. Following are the locations of the various land offices: For Oregon—La Grande, The Dalles, Oregon City, Roseburg, Lakeview. For Washington—Vancouver, Seattle, Yakima, Walla Walla, Colfax.

STATE LANDS.—There remains still for sale a considerable quantity of State lands in Oregon, for information as to which apply to Napoleon Davis, clerk, State Land Office, Salem, Or.

RAILROAD LANDS.—The O. & C. R. R. Co. has land for sale in the Willamette Valley and Southern Oregon. For full information address Land Department Oregon & California Railroad Co., Portland, Oregon. In Eastern Oregon and Washington, are located the lands of the O. R. & N. Co. Apply to T. R. Tannatt, General Land Agent, Farmington, W. T., for maps and particulars.

In Baker and Union Counties, Oregon, the U. P. Co. owns: 16,000 acres of land. This land lies in the rich valley of the Powder River. The soil is rich and deep, and is well adapted to wheat and other cereals. Apples, peaches, plums, and other fruits yield abundantly. The atmosphere is pure, exhilarating and salubrious. Irrigation is not required. The price ranges from \$3 to \$8 per acre. Six years' time is given in which to make payment. The payments must be made annually, with 7 per cent interest.

FARMS FOR SALE.—Good farms, improved, can be bought in Western Oregon, for from \$10 to \$50 per acre. There is enough land for sale to accommodate a large number of home-seekers. In Eastern Oregon and Washington, land may be bought in lots to suit from \$5 to \$50 per acre, according to location. The Oregon Immigration Board, Portland, Or., will furnish printed lists of farms for sale on application.

CITY PROPERTY.—Lots in Portland range from \$200 for suburban to \$500 to \$5,000 for choice residence. Business property ranges from \$10,000 to \$50,000 per lot. In the smaller towns, Seattle, Tacoma, Spokane Falls, Wash., and Astoria, Salem, Albany, Eugene City, Corvallis, McMinnville, Ashland, Or., the prices range from \$50 to \$10,000 per lot.

COST OF LIVING is from 10 to 15 per cent cheaper than in the East. It is conceded that nowhere in the United States is restaurant living so cheap as on the Pacific Coast.

HOTEL RATES.—First-class hotel rates range from \$3 to \$5 per day. Ordinary hotels, \$1.50 and \$2.00. Good houses for immigrants, \$1 per day. Board and lodging by the week, \$4 and \$5.

RENT OF DWELLINGS.—In Portland rents range from \$10 to \$100, according to location. Modest cottages in the suburbs can be had for \$5 to \$15. First-class dwellings, from \$25 to \$45. Elegant residences, \$50 to \$100. In the smaller towns rents are merely nominal.

RENT OF STOREROOMS.—Eligible storerooms in Portland, say 25x50, range from \$50 to \$500. In smaller towns from \$25 to \$200.

WAGES PAID.—Farm hands command about \$20 per month by the year's hire; harvest hands, \$1.75 to \$2.50 per day; house servants about \$20 per month. For mechanics, carpenters, and shop hands, the average is probably \$3 per day; masons, \$6; book-keepers, \$75 to \$250 per month; stenographers and type-writers, \$60 to \$100 per month; clerks, \$60 to \$100 per month; engineers, mechanical and civil, \$4 to \$6 per day.

PRICES OF ANIMALS.—Horses, good farm, from \$200 to \$300 per span; fine blooded, from \$300 to \$1,000 each; mules from \$50 to \$300 per span; milch cows from \$30 to \$50 each; sheep, \$1 to \$5 per head; hogs ordinary, \$2 to \$6.

YIELD PER ACRE.—As to the yield of Oregon productions, we take the report of the Government, actual figures furnished by the growers, and the estimates by the farmers generally. Out of a dozen farmers interviewed, two had less than 24 bushels of wheat to the acre; in 1887, four had 32 bushels, and the other over 36 bushels to the acre. It is a common thing to have 38, 40, and even 50 bushels of wheat to the acre. The Government makes the average nearly 33; oats, 45 to 85 bushels to the acre. It is not an infrequent thing to have a yield of 85 to 100 bushels of oats to the acre in the Willamette Valley. Oats from 5 to 8 feet high are common in this State. A good deal of this grain weighs 50 pounds to the bushel. Wheat raised in this State weighs 64 pounds to the bushel; barley, on an average, 26 to 28 bushels to the acre; rye, 20 to 28 bushels. Potatoes will average about 125 bushels; many farmers gather from 200 to 350 bushels. The growth of such things as squashes, pumpkins, turnips, sweet potatoes and the like, is simply astonishing. Corn in Southern Oregon, where it is grown as a crop, yields 65 to 95 bushels to the acre. The growth of the stalk is enormous, 12 feet being a very common height.

RUNNING WATER.—Every portion of the Northwest is abundantly supplied with pure streams of water.

TIMBER.—There is timber in abundance for all purposes.

FARMS FOR RENT.—Farms can be rented for \$1.75 per acre per annum, or for one-third crop.

FREE SCHOOLS AND CHURCHES.—Good schools and churches are located in every settled part of the Northwest.

HEALTH.—Oregon is the most healthful State in the Union, according to Government statistics. Washington and Idaho are equally healthful.

WHO SHOULD COME.—All honest, industrious people who desire a location for active work where the chances are largely in favor of their success are invited to come to "The New Empire." Impatient and fault-finding persons, and especially lazy people and tramps, are not wanted. The field is especially good for men of capital and brains.

RAILROAD FARES AND FREIGHT.—For rates of fare and freight to the northwest, apply to your nearest Union Pacific Railway agent.

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